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# Backup Alarms

**Backup Alarms**

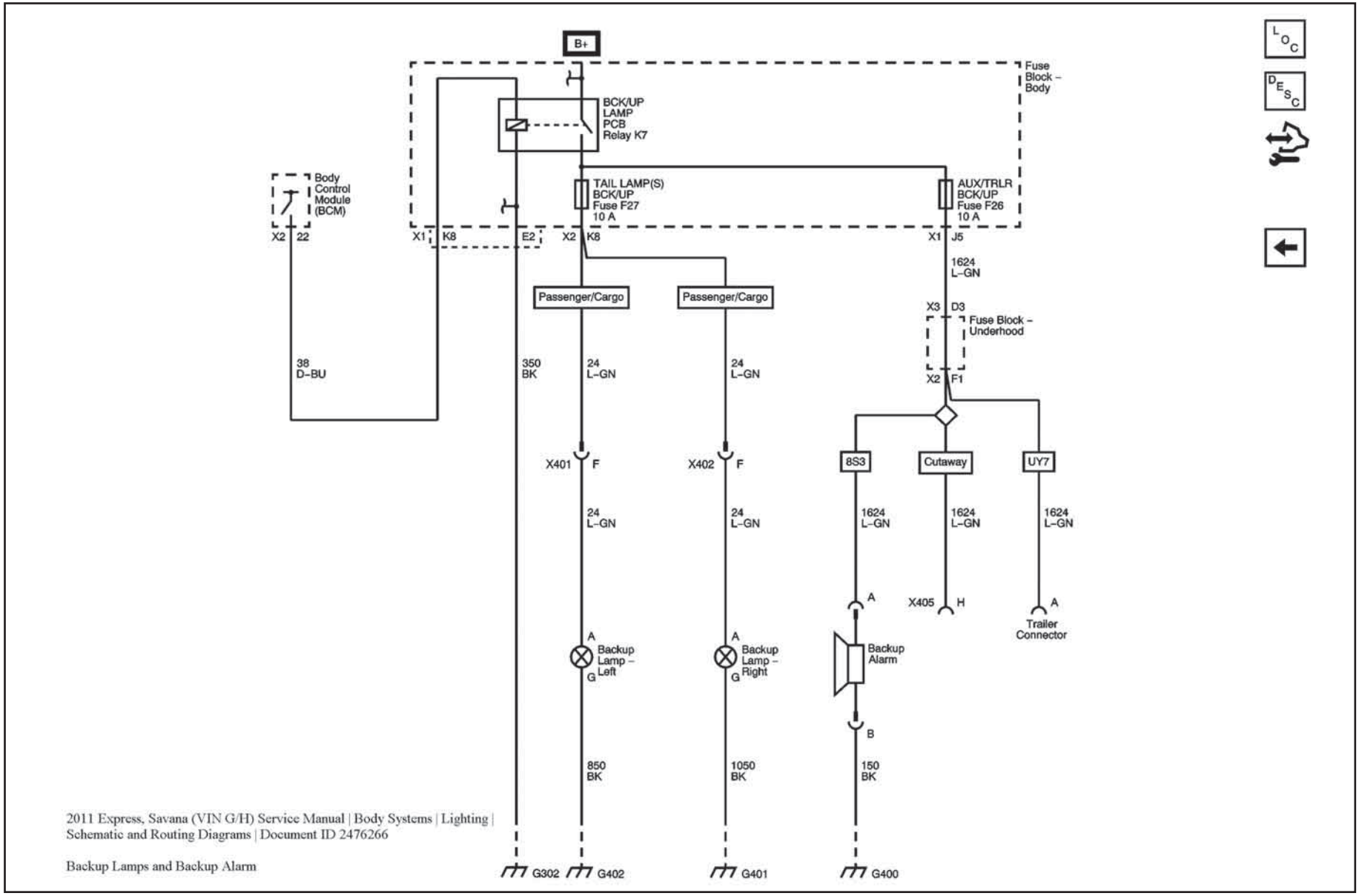
For installation of backup alarms on units with out option code 8S3 [factory backup alarm - loose shipped] connection can be made at the rear lighting connector X-405-H Light Green 1624 wire. [For 8S3 see schematic on page A-42.]

If the backup lamps illuminate in peremeter lighting and key fob acknowledgement modes there are two solutions for correct operation of the backup alarm:

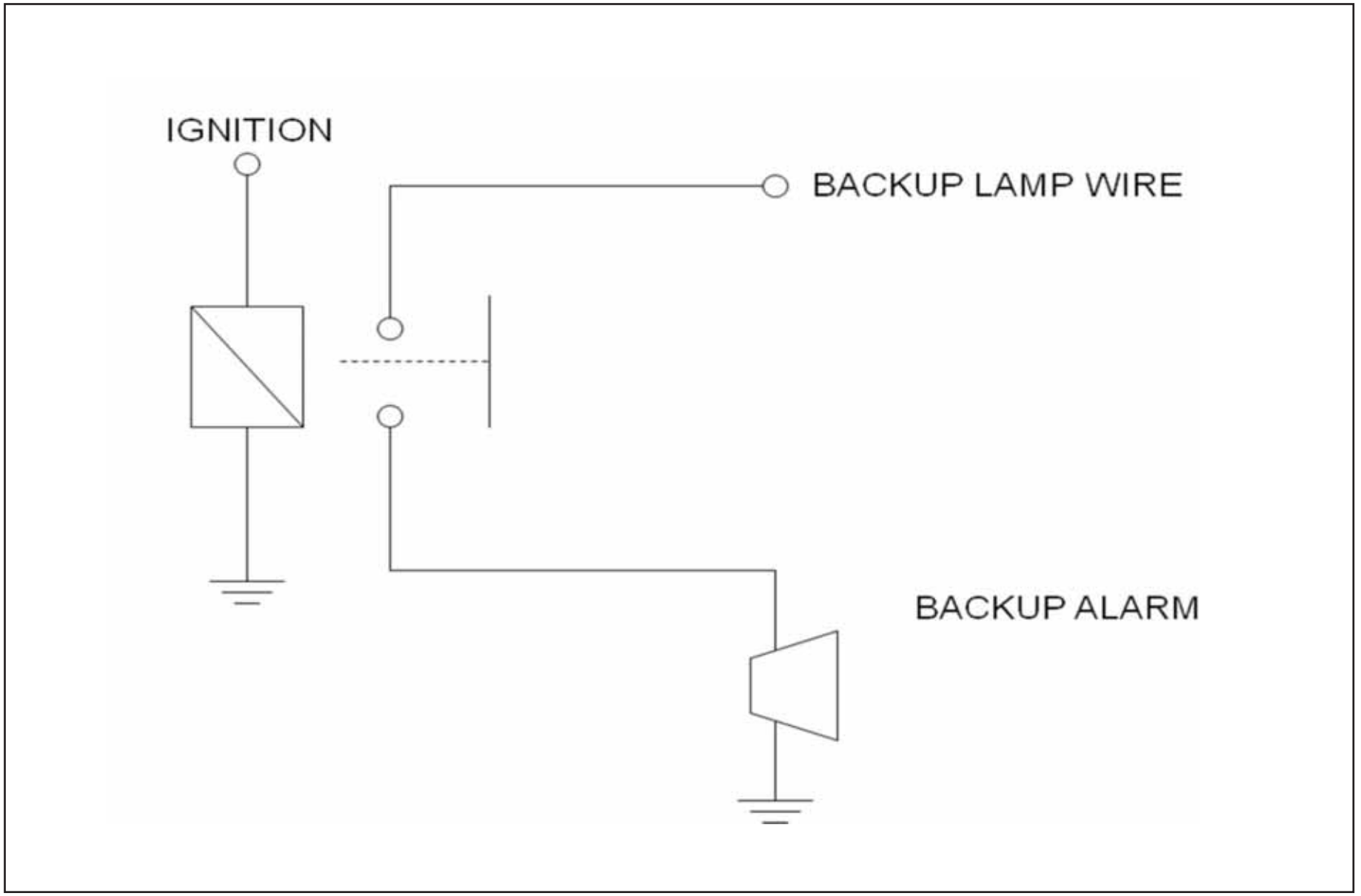
1. Return the unit to a GM dealer to have the BCM software for option 8S3 loaded. This is a fee for service activity.
2. Install an ignition controlled relay to connect the alarm to the 1624 wire such that the relay is closed [alarm connected] with key on. See simplified schematic.

*(continued on next page)*

## Backup Alarms (cont'd.)

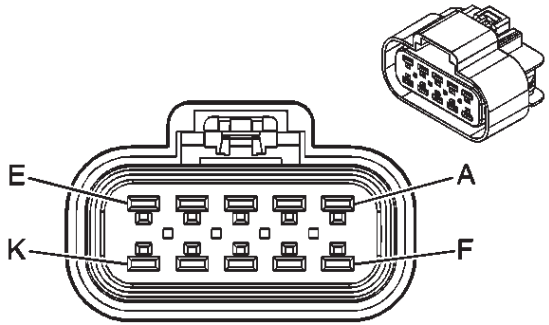


## Ignition Controlled Backup Alarm Relay



## X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway)

**Connector Part Information**




Harness: Cutaway Rear Lighting Connector

OEM: 15326660

Service: 88986262

Description: 10-Way F GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

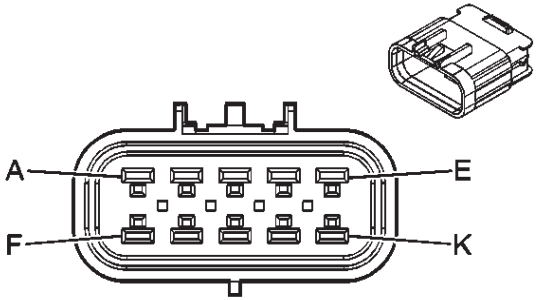
Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

**Connector Part Information**




Harness: Chassis

OEM: 15326661

Service: 88986245

Description: 10-Way M GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway) cont'd

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 L-BU | 1320 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

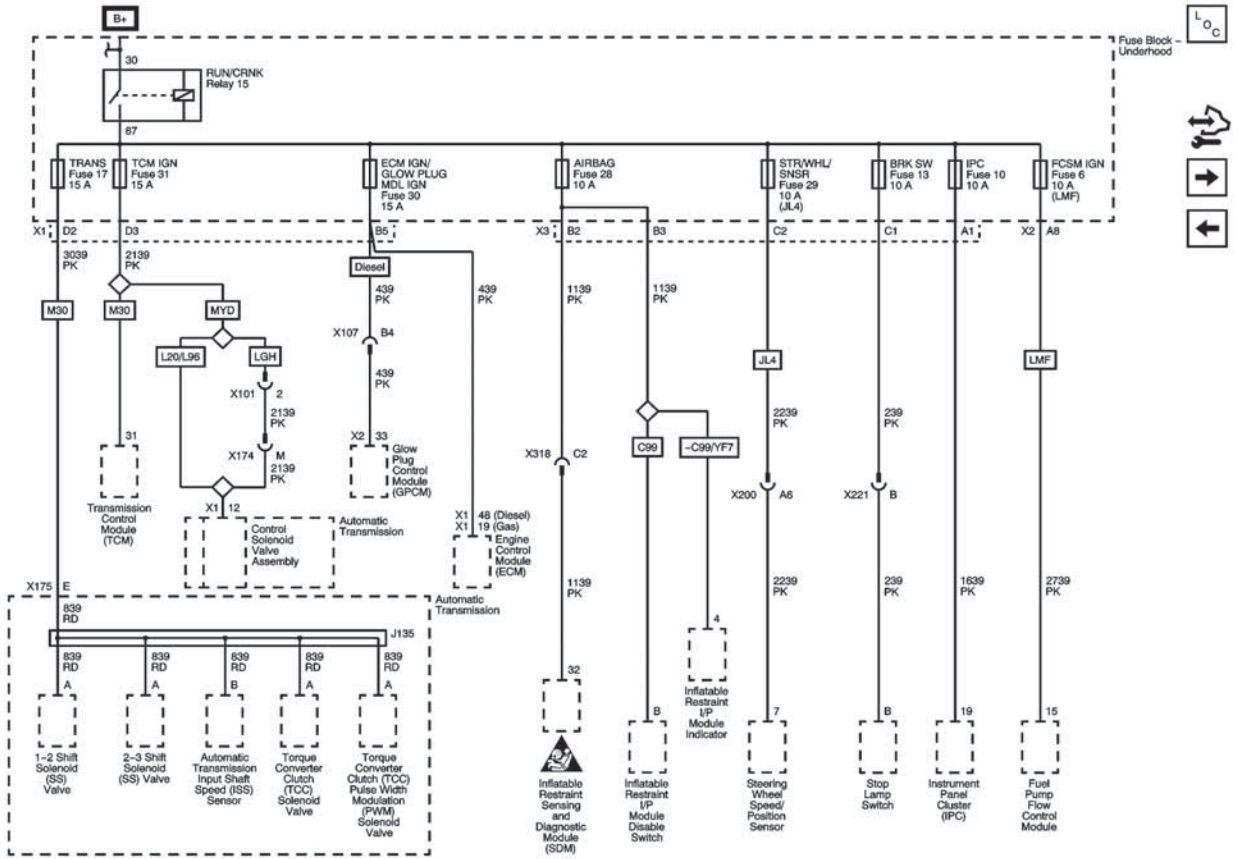
| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 WH | 17 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

## *In Cab Ignition Control Signal*

A switched ignition control signal can be found on the stop lamp [brake] switch cavity B [pink 239 wire] and also at connector X221 cavity B. This signal can be used to close a control relay to power your application with a fused power feed to battery +.

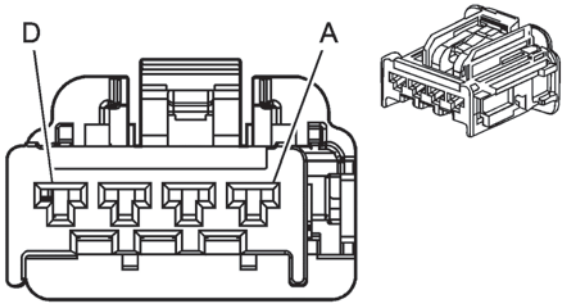
Battery power can be obtained from the main power feed at the side of the body fuse block under the driver seat.

**AIRBAG, BRK SW, ECM IGN/GLOW PLUG MDL IGN, FCSM IGN, IPC, STR/WHL/SNSR, TCM IGN, and TRANS Fuses**



# Stop Lamp Switch

**Connector Part Information**




Harness: Stop Lamp Switch Jumper

OEM: 15466671

Service: 19149301

Description: 4-Way F GT 280 Series (L-GY)

**Terminal Part Information**

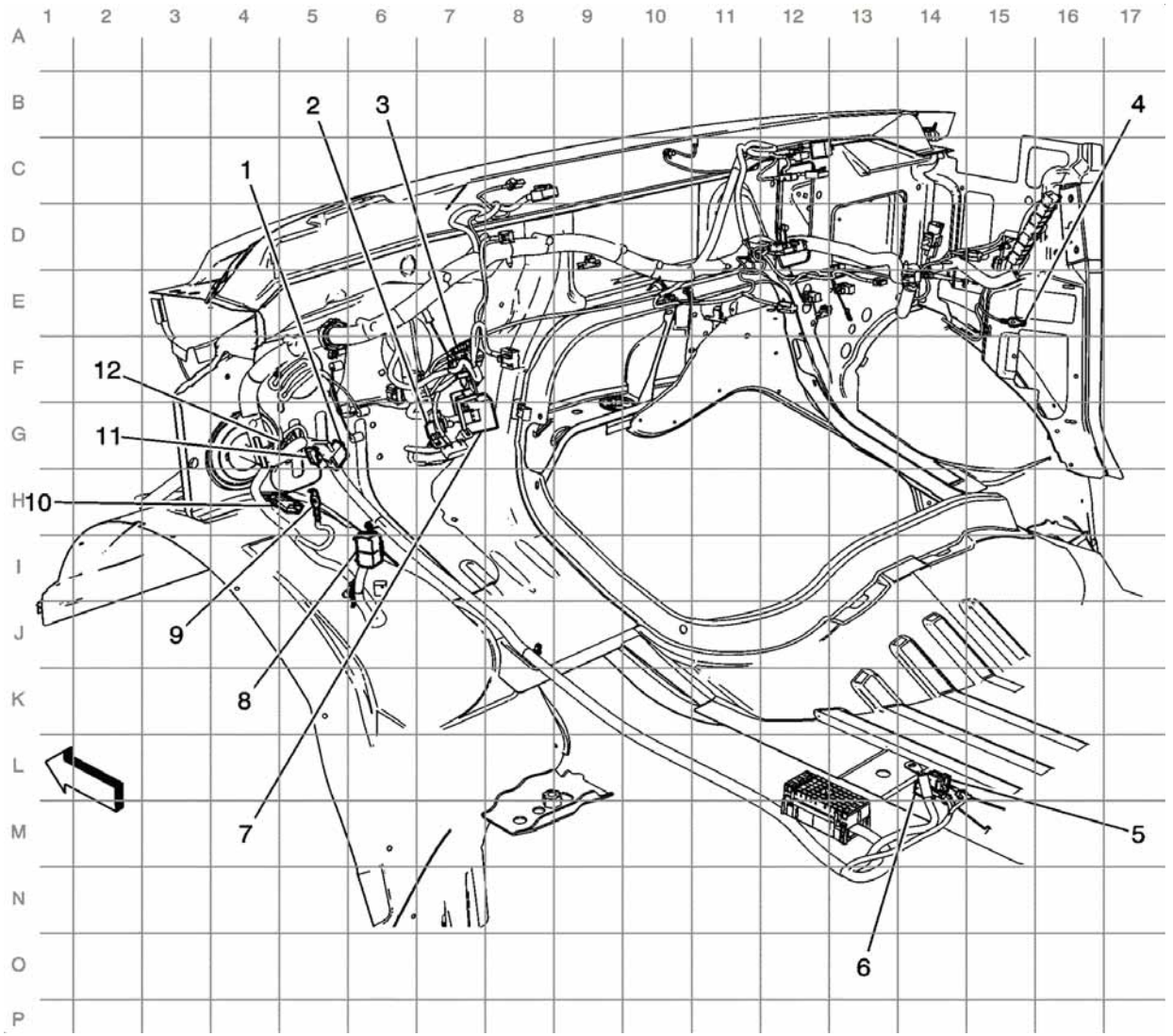
Terminal/Tray: 15304711/8

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.35 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| B | 0.35 PK | 239 | Ignition Voltage |
| C | 0.35 OG/WH | 812 | IP Dimming Voltage Reference |
| D | 0.35 PU | 7062 | Brake Switch Signal |

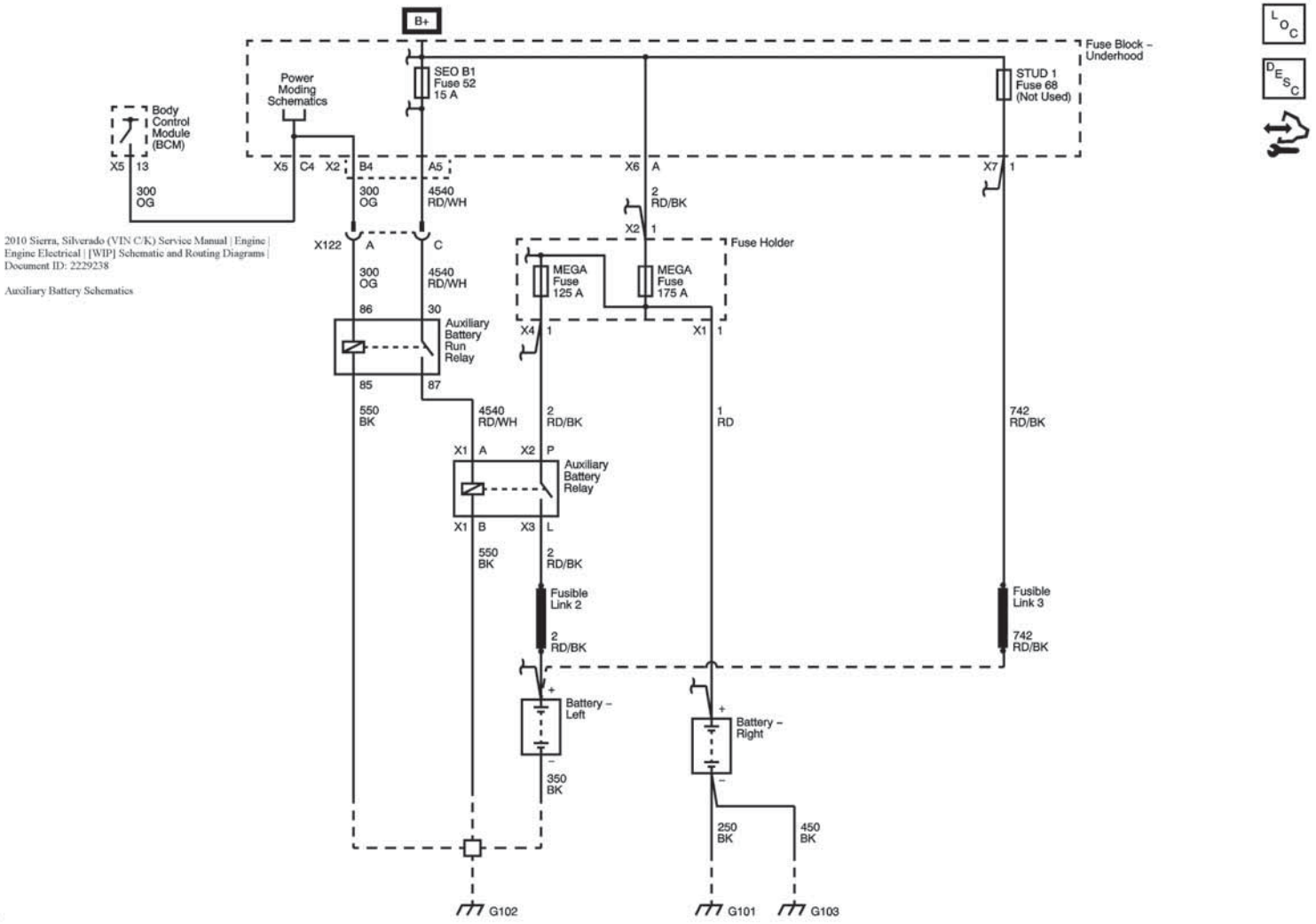
## Instrument Panel Harness Routing - Passenger Compartment




(1) JX250
(2) X221
(3) X276
(4) G304
(5) X331
(6) X330
(7) X200
(8) X318 (Passenger or Cargo)
(9) G301 and G302
(10) X222 (YF2 or YF7)
(11) X220
(12) JX200

## Battery Isolators

Battery isolation can be done in a number of ways. In this section we show you two ways that GM does it. On medium duty trucks we have a diode isolator component that places in line diodes in the battery charge lead going to the alternators. On CK trucks we have a relay isolation scheme. These drawings are provided to show you how you might accomplish your application.

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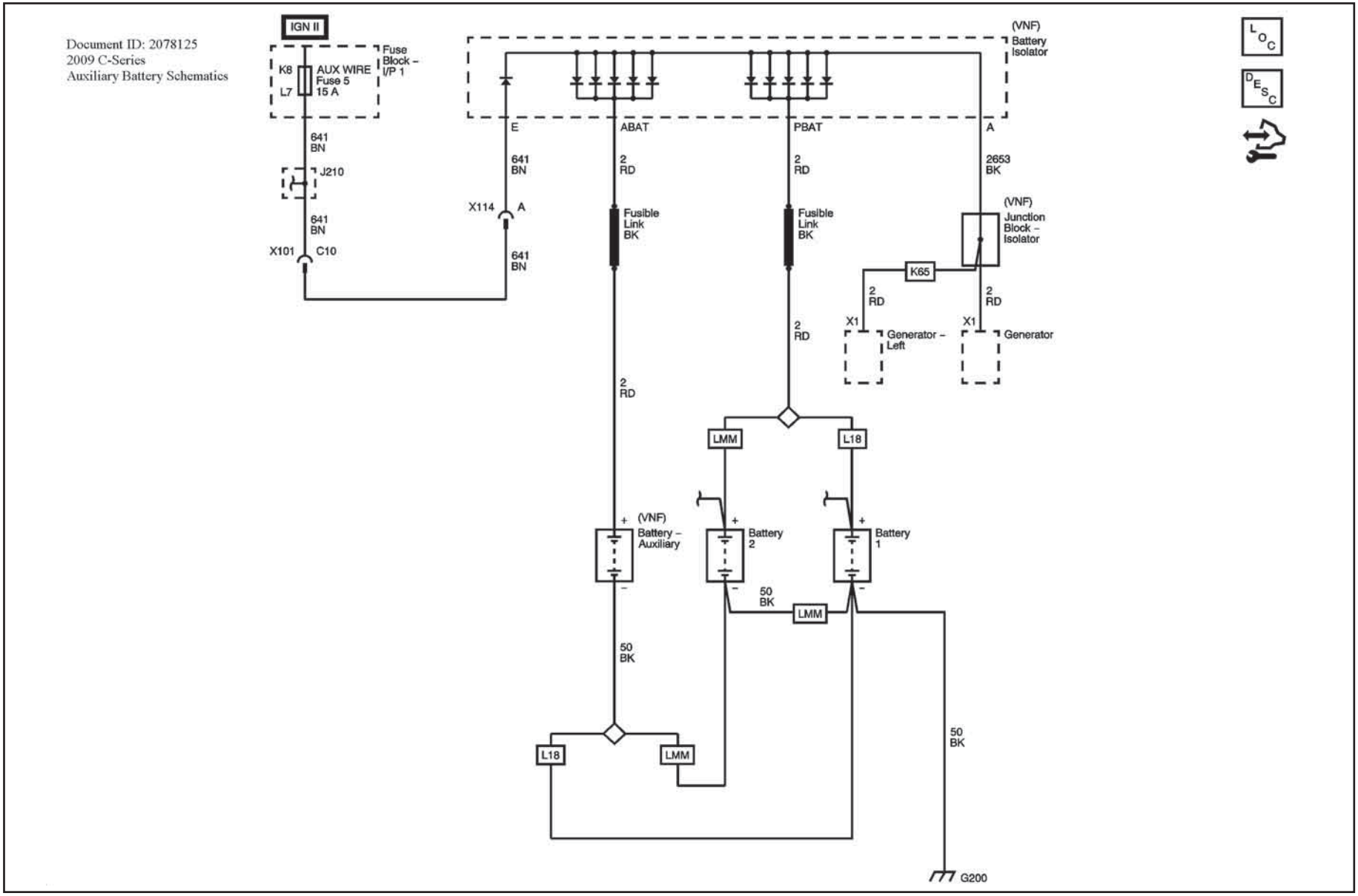
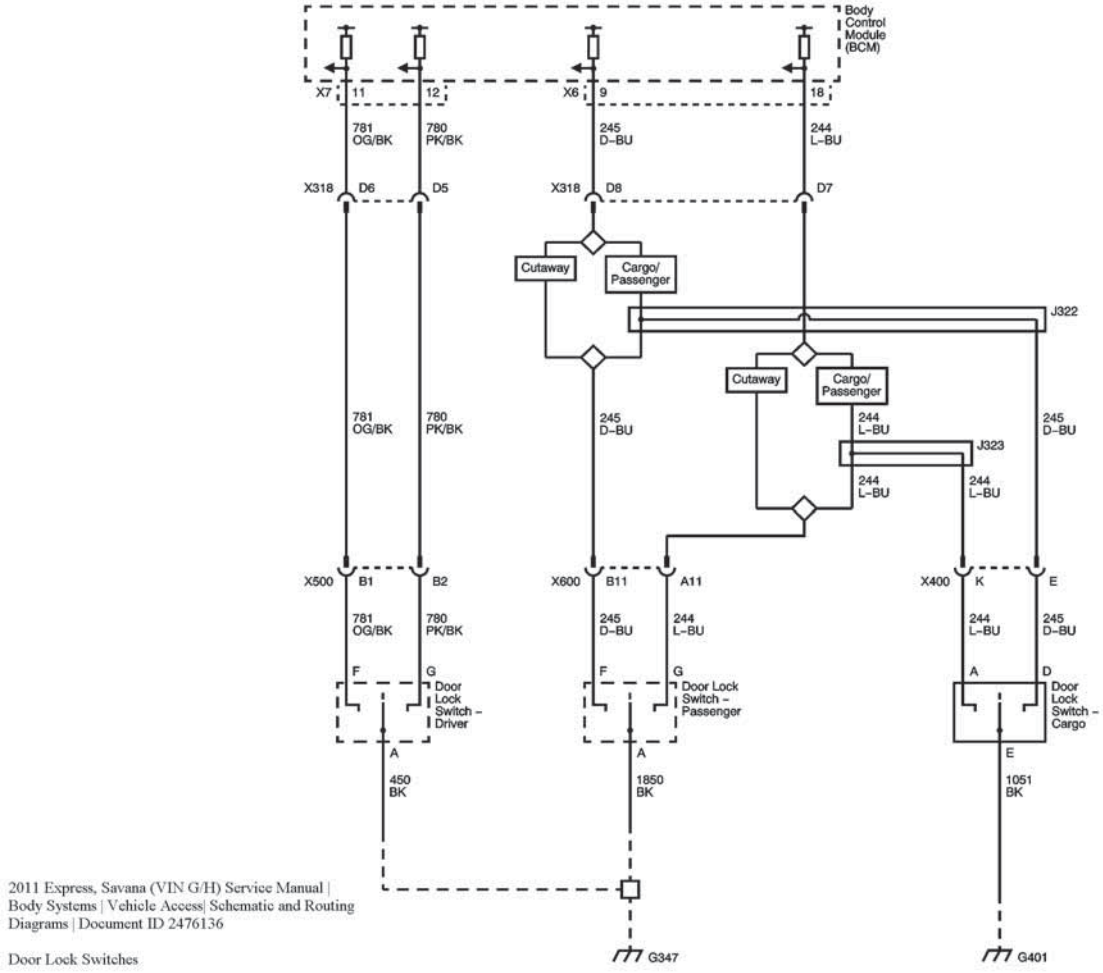
## Battery Isolators cont'd.



## Door Lock and Unlock – from outside the cab

Control access to [driver door lock and unlock switch signals] can be found in the driver door to body harness connector X-500 cavities B1 and B2 – see schematic – Door Lock Switches.

Access to lock and unlock an external door [patient module door or service body door] can be accessed on the passenger side door connector X-600 cavities A2 and B2 – see schematic – Door Latches and Actuators

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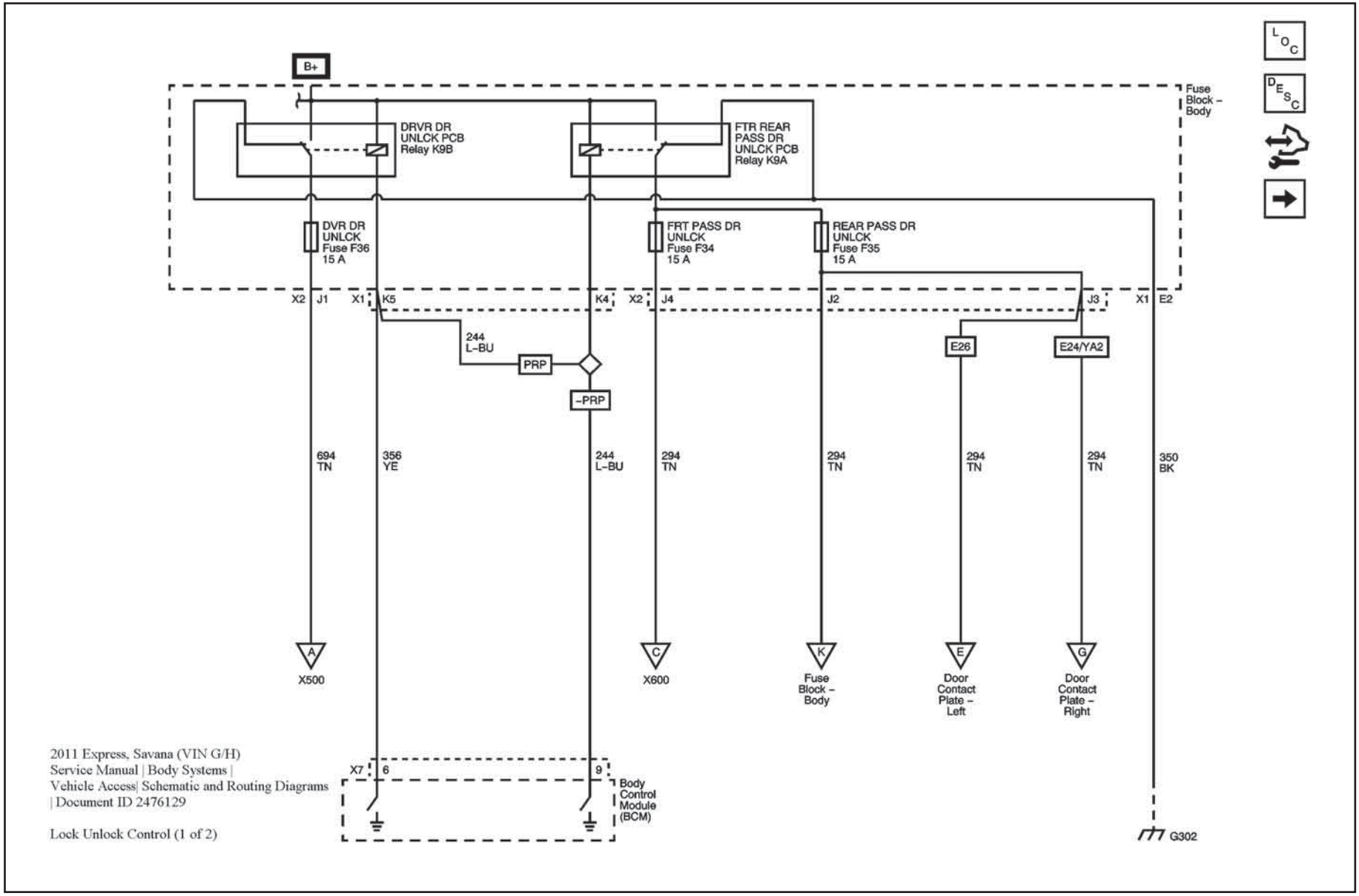
## Door Lock and Unlock – from outside the cab, cont'd.

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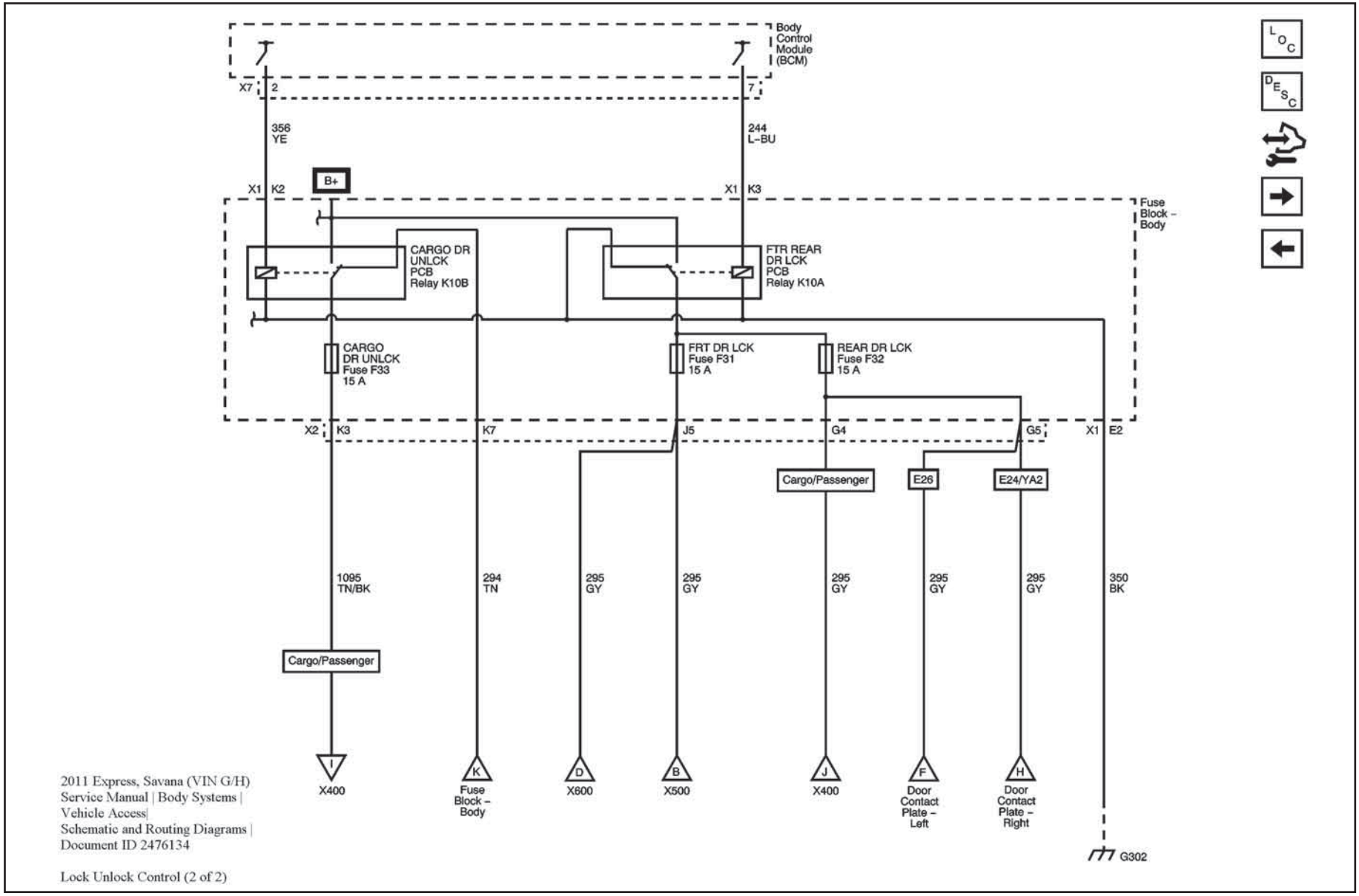
## Door Lock and Unlock – from outside the cab, cont'd.

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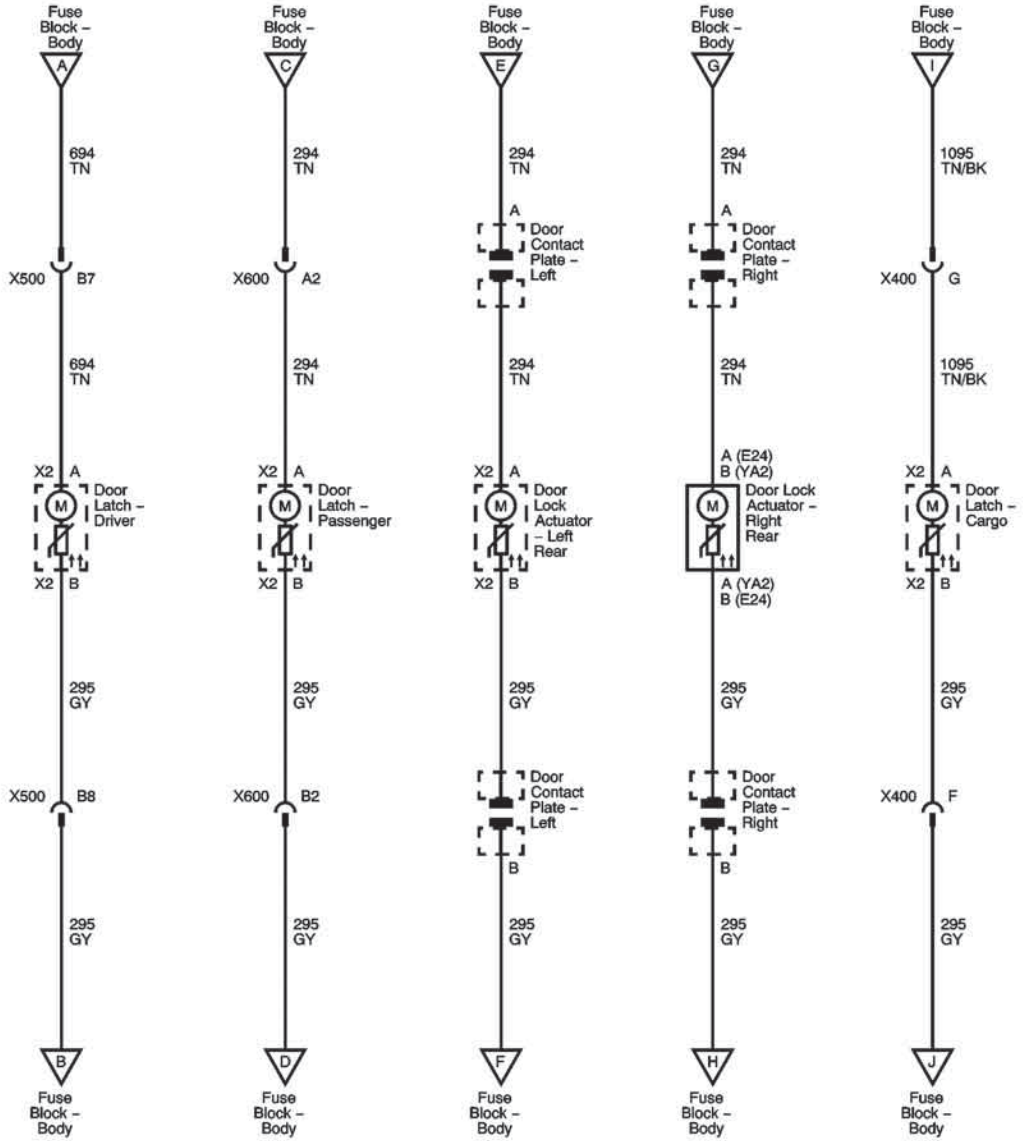
## Door Lock and Unlock – from outside the cab, cont'd.

2011 Express, Savana (VIN G/H)
Service Manual | Body Systems |
Vehicle Access| Schematic and Routing
Diagrams | Document ID 2476135

Door Latches and Actuators





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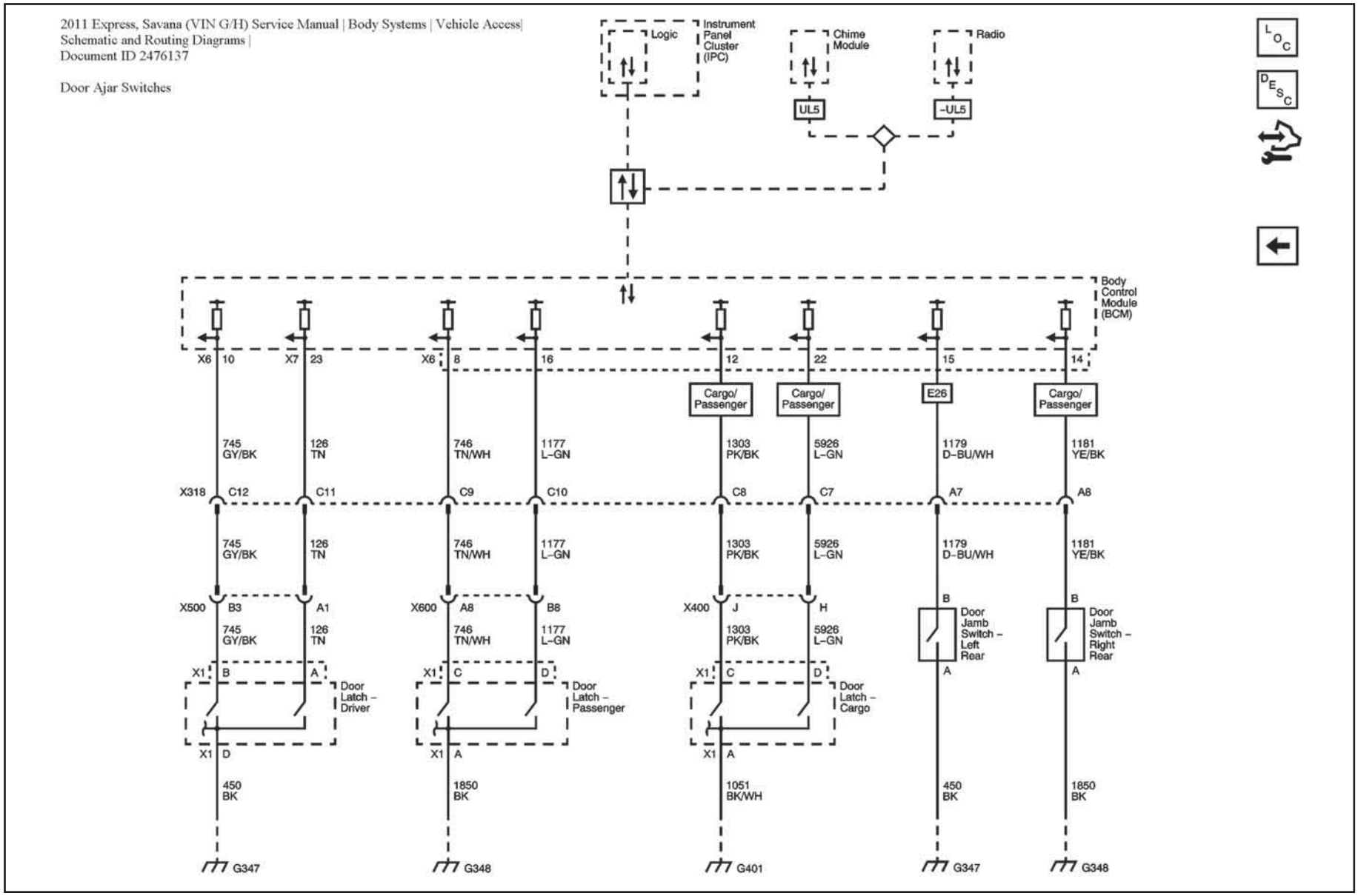
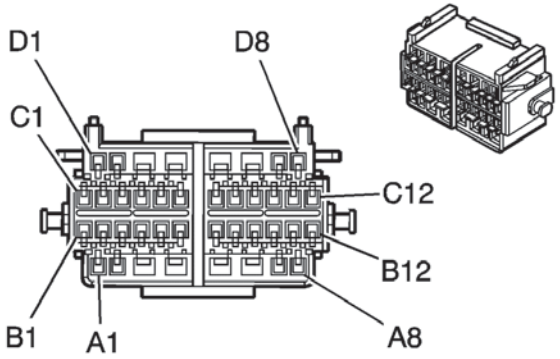
## Door Lock and Unlock – from outside the cab, cont'd.



# X500 Driver Door Harness to Body Harness

**Connector Part Information**




Harness: Driver Door

OEM: 15448129

Service: 89046969

Description: 40-Way F GT 150 280 Series (BK)

**Terminal Part Information**

Pins: A1, A7-A8, B1-B4, B7-B8, B12, C1-C2, C7-C8, C12, D7-D8

Terminal/Tray: 12191812/19

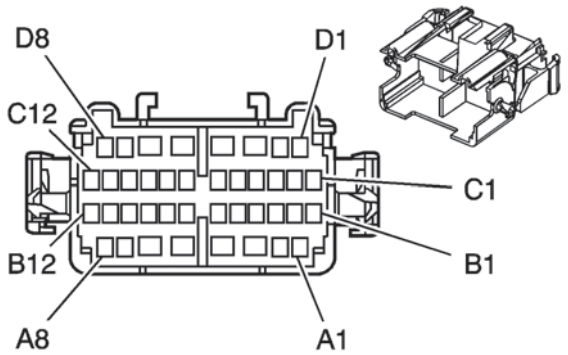
Core/Insulation Crimp: Pins: A7, B7-B8, B12, C12 : C/A

Core/Insulation Crimp: Pins: A1, A8, B1-B4, C1-C2, C7-C8, D7-D8 : E/C

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

*(continued on next page)*

**Connector Part Information**




Harness: Body

OEM: 15475869

Service: 88988307

Description: 40-Way M GT 150 280 Series (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X500 Driver Door Harness to Body Harness, cont'd.

**Terminal Part Information:** Driver Door, *cont'd.*

Pins: A5-A6

Terminal/Tray: 15304711/8

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: A5, D4-D6

Terminal/Tray: 15304713/19

Core/Insulation Crimp: F/D

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 126 | Left Front Door Open Switch Signal |
| A2-A4 | -- | -- | Not Used |
| A5 | 0.35 BK | 450 | Ground (AU3 without DE5, DE7 or A31) |
| | 3 BK | 450 | Ground (AU3 with DE5, DE7 or A31) |
| A6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3) |
| | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (A31) |
| A7 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A8 | 0.35 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |
| **B1** | **0.35 OG/BK** | **781** | **Driver Door Lock Switch Unlock Signal (AU3)** |

***(continued on next page)***

Harness: Body, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 126 | Left Front Door Open Switch Signal |
| A2-A4 | -- | -- | Not Used |
| A5 | 3 BK | 450 | Ground |
| A6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3 or A31) |
| A7 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A8 | 0.5 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |
| **B1** | **0.35 OG/BK** | **781** | **Driver Door Lock Switch Unlock Signal (AU3)** |
| **B2** | **0.35 PK/BK** | **780** | **Driver Door Lock Switch Lock Signal (AU3)** |
| B3 | 0.35 GY/BK | 745 | Left Front Door Ajar Switch Signal |
| B4 | 0.35 BK | 450 | Ground |
| B5-B6 | -- | -- | Not Used |
| B7 | 0.8 TN | 694 | Driver Door Lock Actuator Unlock Control (AU3) |
| B8 | 1 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| B9-B11 | -- | -- | Not Used |
| B12 | 0.8 D-BU | 1857 | Left Front Midrange Speaker Output (+) |
| C1 | | | |

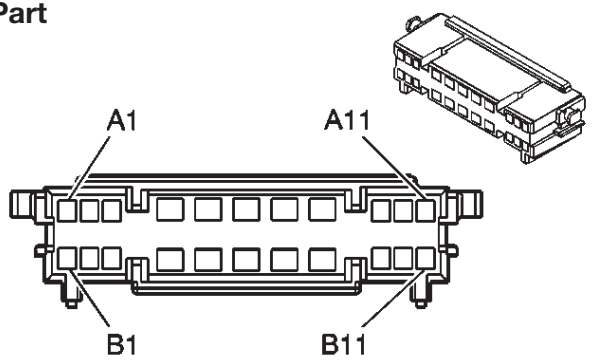
## X500 Driver Door Harness to Body Harness, cont'd.

Harness: Driver Door, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| **B2** | **0.35 PK/BK** | **780** | **Driver Door Lock Switch Lock Signal (AU3)** |
| B3 | 0.35 GY/BK | 745 | Left Front Door Ajar Switch Signal |
| B4 | 0.35 BK | 450 | Ground |
| B5-B6 | -- | -- | Not Used |
| B7 | 0.8 TN | 694 | Driver Door Lock Actuator Unlock Control (AU3) |
| B8 | 0.8 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| B9-B11 | -- | -- | Not Used |
| B12 | 0.8 D-BU | 1857 | Left Front Midrange Speaker Output (+) |
| C1 | | | |

## X600 Passenger Door Harness to Body Harness

**Connector Part Information**




Harness: Passenger Door
OEM: 15326063
Service: 15326063
Description: 22-Way F GT 150, 280 (GY)

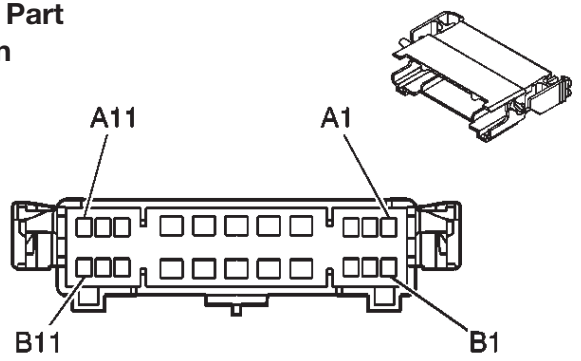
**Terminal Part Information**

Pins: A1-A3, A9-A11, B1-B3, B10-B11
Terminal/Tray: 12191812/19
Core/Insulation Crimp: Pins: A1-A3, B1-B2 : C/A
Core/Insulation Crimp: Pins: B3, B10-B11, A9-A11 : E/C
Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: A5-A8, B6-B8
Terminal/Tray: 15304711/8
Core/Insulation Crimp: Pins: A5 : 2/A
Core/Insulation Crimp: Pins: A5-A8, B6-B8 : E/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

*(continued on next page)*

**Connector Part Information**




Harness: Body
OEM: 15326064
Service: Pending
Description: 22-Way M GT 150, 280 (GY)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit
Core/Insulation Crimp: See Terminal Repair Kit
Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X600 Passenger Door Harness to Body Harness, cont'd.

**Terminal Part Information:** Passenger Door, *cont'd.*

Pins: A4, B4-B5

Terminal/Tray: 15304713/19

Core/Insulation Crimp: F/D

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.8 OG | 1853 | Right Front Midrange Speaker Output (+) |
| **A2** | **0.8 TN** | **294** | **Door Lock Actuator Unlock Control (AU3)** |
| A3 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A4 | 3 L-BU | 166 | Power Window Master Switch Right Front Up Signal (A31) |
| A5 | 0.8 BK | 1850 | Ground |
| A6 | 0.35 BN/WH | 1498 | Passenger Mirror Motor Left/Down Control (DE5 or DE7) |
| | 0.35 BN/WH | 1498 | Passenger Mirror Motor Left/Down Control (DE5 or DE7) |
| A7 | 0.35 OG/WH | 881 | Passenger Mirror Motor Right Control (DE5 or DE7) |
| A8 | 0.35 TN/WH | 746 | Right Front Door Ajar Switch Signal |
| A9 | 0.35 BK | 1850 | Ground |

*(continued on next page)*

Harness: Body, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.8 OG | 1853 | Right Front Midrange Speaker Output (+) |
| **A2** | **0.8 TN** | **294** | **Door Lock Actuator Unlock Control (AU3)** |
| A3 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A4 | 3 L-BU | 166 | Power Window Master Switch Right Front Up Signal (A31) |
| A5 | 0.8 BK | 1850 | Ground |
| A6 | 0.5 BN/WH | 1498 | Passenger Mirror Motor Left/Down Control (DE5 or DE7) |
| A7 | 0.5 OG/WH | 881 | Passenger Mirror Motor Right Control (DE5 or DE7) |
| A8 | 0.35 TN/WH | 746 | Right Front Door Ajar Switch Signal |
| A9 | 0.35 BK | 1850 | Ground |
| A10 | 0.5 D-GN | 2134 | Side Impact Sensing Module - Right -- Signal |
| A11 | 0.35 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| B1 | 0.8 D-GN | 1953 | Right Front Midrange Speaker Output (-) |
| **B2** | **1 GY** | **295** | **Door Lock Actuator Lock Control (AU3)** |
| B3 | 0.5 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control (DE5 or DE7) |

*(continued on next page)*

## X600 Passenger Door Harness to Body Harness, cont'd.

Harness: Driver Door, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A10 | 0.5 D-GN | 2134 | Side Impact Sensing Module - Right - Signal |
| A11 | 0.35 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| B1 | 0.8 D-GN | 1953 | Right Front Midrange Speaker Output (-) |
| **B2** | **0.8 GY** | **295** | **Door Lock Actuator Lock Control (AU3)** |
| B3 | 0.5 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control (DE5 or DE7) |
| B4 | 3 TN | 167 | Power Window Master Switch Right Front Down Signal (A31) |
| B5 | 3 D-GN | 1001 | RAP Control (A31) |
| B6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3) |
| | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (A31) |
| B7 | 0.35 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |
| B8 | 0.35 L-GN | 1177 | Right Front Door Open Switch Signal |
| B9 | -- | -- | Not Used |
| B10 | 0.5 WH/BK | 6629 | Low Reference (ASF) |
| B11 | 0.35 D-BU | 245 | Passenger Door Lock Switch Unlock Control (AU3) |

Harness: Body, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| B4 | 3 TN | 167 | Power Window Master Switch Right Front Down Signal (A31) |
| B5 | 3 D-GN | 1001 | RAP Control (A31) |
| B6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3 or A31) |
| B7 | 0.5 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |
| B8 | 0.35 L-GN | 1177 | Right Front Door Open Switch Signal |
| B9 | -- | -- | Not Used |
| B10 | 0.5 WH/BK | 6629 | Low Reference (ASF) |
| B11 | 0.35 D-BU | 245 | Passenger Door Lock Switch Unlock Control (AU3) |

## Charging System Description and Operation

**Electrical Power Management Overview**

The electrical power management system is designed to monitor and control the charging system and send diagnostic messages to alert the driver of possible problems with the battery and generator. This electrical power management system primarily utilizes existing on-board computer capability to maximize the effectiveness of the generator, to manage the load, improve battery state-of-charge and life, and minimize the system's impact on fuel economy. The electrical power management system performs 3 functions:

- It monitors the battery voltage and estimates the battery condition.
- It takes corrective actions by boosting idle speeds, and adjusting the regulated voltage.
- It performs diagnostics and driver notification.

The battery condition is estimated during ignition-off and during ignition-on. During ignition-off the state-of-charge of the battery is determined by measuring the open-circuit voltage. The state-of-charge is a function of the acid concentration and the internal resistance of the battery, and is estimated by reading the battery open circuit voltage when the battery has been at rest for several hours.

The state-of-charge can be used as a diagnostic tool to tell the customer or the dealer the condition of the battery. Throughout ignition-on, the algorithm continuously estimates state-of-charge based on adjusted net amp hours, battery capacity, initial state-of-charge, and temperature.

While running, the battery degree of discharge is primarily determined by a battery current sensor, which is integrated to obtain net amp hours.

In addition, the electrical power management function is designed to perform regulated voltage control to improve battery state-of-charge, battery life, and fuel economy. This is accomplished by using knowledge of the battery state-of-charge and temperature to set the charging voltage to an optimum battery voltage level for recharging without detriment to battery life.

The Charging System Description and Operation is divided into 3 sections. The first section describes the charging system components and their integration into the electrical power management. The second section describes charging system operation. The third section describes the instrument panel cluster operation of the charge indicator, driver information center messages, and voltmeter operation.

# Charging System Description and Operation

## CHARGING SYSTEM COMPONENTS

### Generator

The generator is a serviceable component. If there is a diagnosed failure of the generator it must be replaced as an assembly. The engine drive belt drives the generator. When the rotor is spun it induces an alternating current (AC) into the stator windings. The AC voltage is then sent through a series of diodes for rectification. The rectified voltage has been converted into a direct current (DC) for use by the vehicles electrical system to maintain electrical loads and the battery charge. The voltage regulator integral to the generator controls the output of the generator. It is not serviceable. The voltage regulator controls the amount of current provided to the rotor. If the generator has field control circuit failure, the generator defaults to an output voltage of 13.8 V.

### Body Control Module (BCM)

The body control module (BCM) is a GMLAN device. It communicates with the engine control module (ECM) and the instrument panel cluster for electrical power management (electrical power management) operation. The BCM determines the output of the generator and sends the information to the ECM for control of the generator turn on signal circuit. It monitors the generator field duty cycle signal circuit information sent from the ECM for control of the generator. It monitors a battery current sensor, the battery positive voltage circuit, and estimated battery temperature to determine battery state of charge. The BCM performs idle boost.

### Battery Current Sensor

The battery current sensor is a serviceable component that is connected to the negative battery cable at the battery. The battery current sensor is a 3-wire hall effect current sensor. The battery current sensor monitors the battery current. It directly inputs to the BCM. It creates a 5-volt pulse width modulation (PWM) signal of 128 Hz with a duty cycle of 0-100 percent. Normal duty cycle is between 5-95 percent. Between 0-5 percent and 95-100 percent are for diagnostic purposes.

### Engine Control Module (ECM)

When the engine is running, the generator turn-on signal is sent to the generator from the ECM, turning on the regulator. The generator's voltage regulator controls current to the rotor, thereby controlling the output voltage. The rotor current is proportional to the electrical pulse width supplied by the regulator. When the engine is started, the regulator senses generator rotation by detecting AC voltage at the stator through an internal wire. Once the engine is running, the regulator varies the field current by controllingthe pulse width. This regulates the generator output voltage for proper battery charging and electrical system operation. The generator field duty terminal is connected internally to the voltage regulator and externally to the ECM. When the voltage regulator detects a charging system problem, it grounds this circuit to signal the ECM that a problem exists. The ECM monitors the generator field duty cycle signal circuit, and receives control decisions based on information from the BCM.

*(continued on next page)*

## Charging System Description and Operation, cont'd.

**CHARGING SYSTEM COMPONENTS, cont'd.**

**Instrument Panel Cluster**

The instrument panel cluster provides the customer notification in case a concern with the charging system. There are 2 means of notification, a charge indicator and a driver information center message of SERVICE BATTERY CHARGING SYSTEM if equipped.

## Charging System Description and Operation

**CHARGING SYSTEM OPERATION**

The purpose of the charging system is to maintain the battery charge and vehicle loads. There are 6 modes of operation and they include:

- Battery Sulfation Mode
- Charge Mode
- Fuel Economy Mode
- Headlamp Mode
- Start Up Mode
- Voltage Reduction Mode

The engine control module (ECM) controls the generator through the generator turn ON signal circuit. The ECM monitors the generator performance though the generator field duty cycle signal circuit. The signal is a pulse width modulation (PWM) signal of 128 Hz with a duty cycle of 0-100 percent. Normal duty cycle is between 5-95 percent. Between 0-5 percent and 95-100 percent are for diagnostic purposes. The following table shows the commanded duty cycle and output voltage of the generator:

| Commanded Duty Cycle | Generator Output Voltage |
|---|---|
| 10% | 11 V |
| 20% | 11.56 V |
| 30% | 12.12 V |
| 40% | 12.68 V |
| 50% | 13.25 V |
| 60% | 13.81 V |
| 70% | 14.37 V |
| 80% | 14.94 V |
| 90% | 15.5 V |

The generator provides a feedback signal of the generator voltage output through the generator field duty cycle signal circuit to the ECM. This information is sent to the body control module (BCM). The signal is PWM signal of 128 Hz with a duty cycle of 0-100 percent. Normal duty cycle is between 5-99 percent. Between 0-5 percent and 100 percent are for diagnostic purposes.

*(continued on next page)*

## Charging System Description and Operation, cont'd.

**CHARGING SYSTEM OPERATION, cont'd.**

**Battery Sulfation Mode**

The BCM will enter this mode when the interpreted generator output voltage is less than 13.2 V for 45 minutes. When this condition exists the BCM will enter Charge Mode for 2-3 minutes. The BCM will then determine which mode to enter depending on voltage requirements.

**Charge Mode**

The BCM will enter Charge Mode when ever one of the following conditions are met.

- The wipers are ON for than 3 seconds.
- GMLAN (Climate Control Voltage Boost Mode Request) is true, as sensed by the HVAC control head. High speed cooling fan, rear defogger and HVAC high speed blower operation can cause the BCM to enter the Charge Mode.
- The estimated battery temperature is less than 0°C (32°F).
- Battery State of Charge is less than 80 percent.
- Vehicle speed is greater than 145 km/h (90 mph)
- Current sensor fault exists.
- System voltage was determined to be below 12.56 V

When any one of these conditions is met, the system will set targeted generator output voltage to a charging voltage between 13.9-15.5 V, depending on the battery state of charge and estimated battery temperature.

**Fuel Economy Mode**

The BCM will enter Fuel Economy Mode when the estimated battery temperature is at least 0°C (32°F) but less than or equal to 80°C (176°F), the calculated battery current is less than 15 amperes and greater than -8 amperes, and the battery state-of-charge is greater than or equal to 80 percent. Its targeted generator output voltage is the open circuit voltage of the battery and can be between 12.5-13.1 V. The BCM will exit this mode and enter Charge Mode when any of the conditions described above are present.

**Headlamp Mode**

The BCM will enter Headlamp Mode when ever the headlamps are ON (high or low beams). Voltage will be regulated between 13.9-14.5 V.

*(continued on next page)*

## Charging System Description and Operation, cont'd.

**CHARGING SYSTEM OPERATION, cont'd.**

**Start Up Mode**

When the engine is started the BCM sets a targeted generator output voltage of 14.5 V for 30 seconds.

**Voltage Reduction Mode**

The BCM will enter Voltage Reduction Mode when the calculated ambient air temperature is above 0°C (32°F). The calculated battery current is less than 1 ampere and greater than -7 amperes, and the generator field duty cycle is less than 99 percent. Its targeted generator output voltage is 12.9 V. The BCM will exit this mode once the criteria are met for Charge Mode.

# Charging System Description and Operation

## INSTRUMENT PANEL CLUSTER OPERATION

### Charge Indicator Operation

The instrument panel cluster illuminates the charge indicator and displays a warning message in the driver information center if equipped, when the one or more of the following occurs:

- The engine control module (ECM) detects that the generator output is less than 11 V or greater than 16 V. The instrument panel cluster receives a GMLAN message from the ECM requesting illumination.
- The instrument panel cluster determines that the system voltage is less than 11 V or greater than 16 V for more than 30 seconds. The instrument panel cluster receives a GMLAN message from the body control module (BCM) indicating there is a system voltage range concern.
- The instrument panel cluster performs the displays test at the start of each ignition cycle. The indicator illuminates for approximately 3 seconds.

## BATTERY NOT CHARGING SERVICE CHARGING SYSTEM

The BCM and the ECM will send a GMLAN message to the driver information center for the BATTERY NOT CHARGING SERVICE CHARGING SYSTEM message to be displayed. It is commanded ON when a charging system DTC is a current DTC. The message is turned OFF when the conditions for clearing the DTC have been met.

## SERVICE BATTERY CHARGING SYSTEM

The BCM and the ECM will send a GMLAN message to the driver information center for the SERVICE BATTERY CHARGING SYSTEM message to be displayed. It is commanded ON when a charging system DTC is a current DTC. The message is turned OFF when the conditions for clearing the DTC have been met.

## Fast Idle (UF3)

Engine idle up feature – option code UF3 – can be added on units with 6.0L gas or 6.6L Diesel engines and cruise control provided it was available on your model but not ordered. To assure availability for your model go to **www.gmupfitter.com** and select 'quick links' then 'GM Links' then 'On Line Order Guide' and enter your vehicle information. Here is the link **http://eogld.ecomm.gm.com/dmdindex.htm**

## HVAC Compressor Control – Remote

Remote control of the HVAC compressor can be accomplished by supplying a ground at the low pressure switch cavity A – see schematic and locator drawing.

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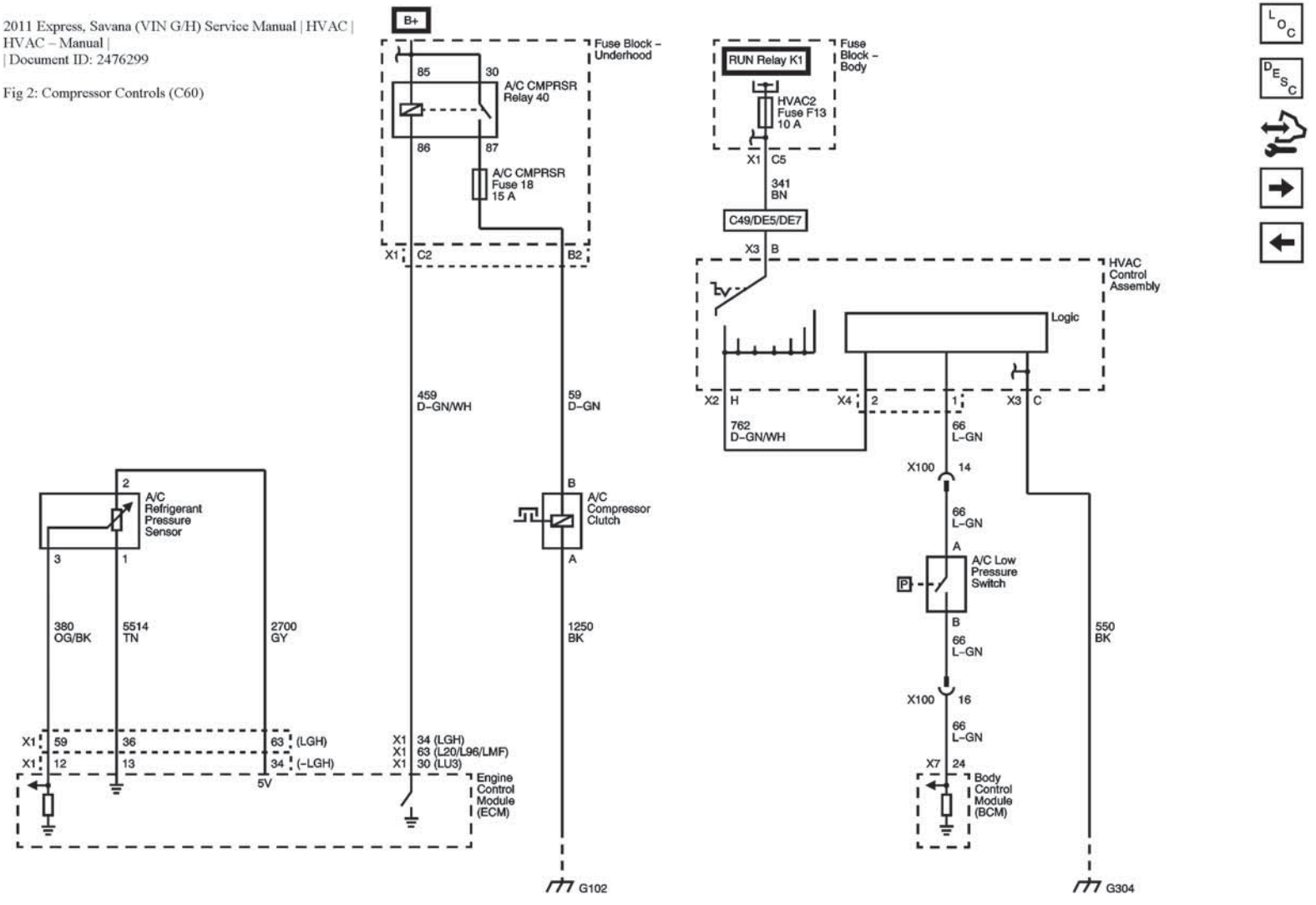
Fig 2: Compressor Controls (C60)



## *Front of Engine Compartment*

(1) Windshield Washer Solvent Container

(2) A/C Refrigerent Pressure Sensor (C60)

(3) Windshield Wiper Motor

(4) Engine Coolant Level Switch (LMM)

(5) Coolant Surge Tank

**(6) A/C Low Pressure Switch (C60)**

(7) A/C Accumulator (C60)

(8) A/C Compressor (C60)

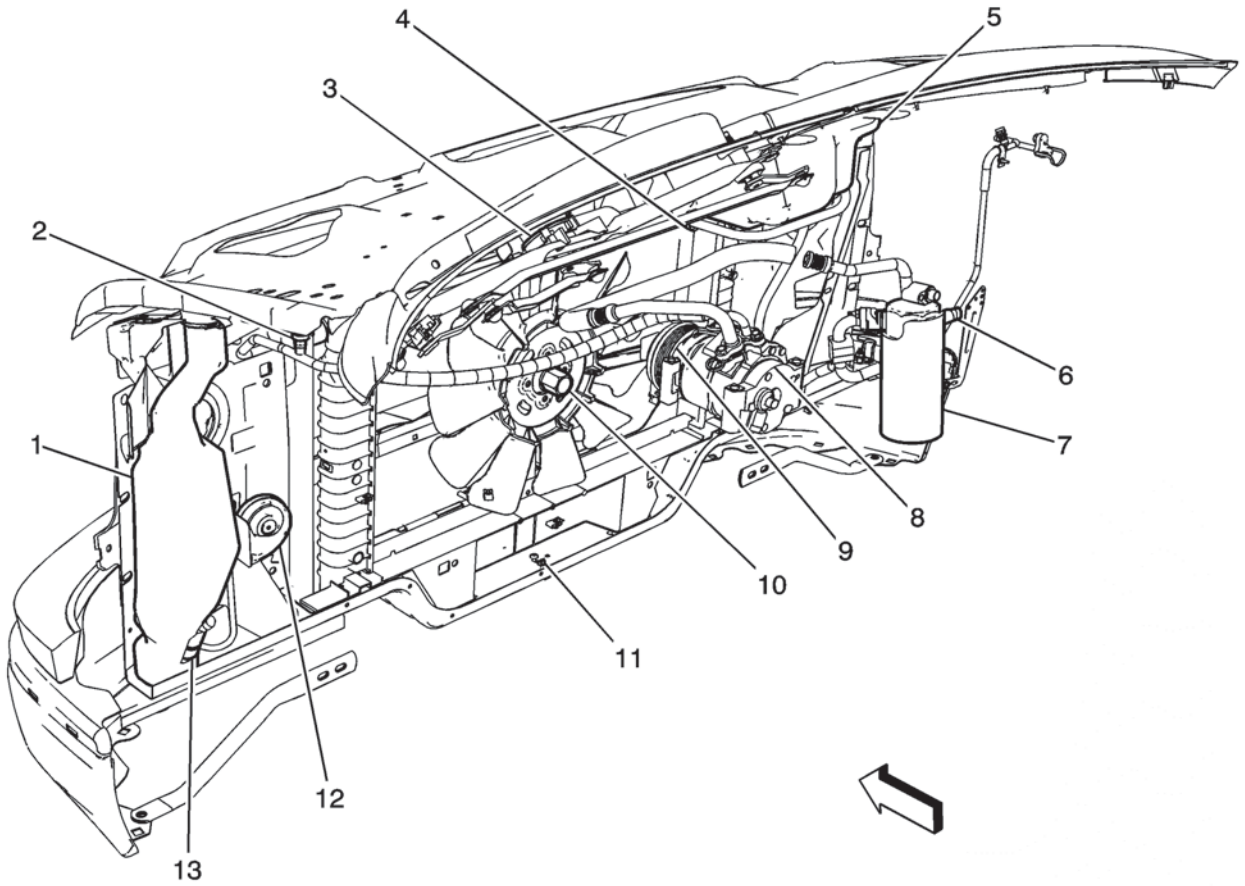
(9) A/C Compressor Clutch (C60)

(10) Engine Cooling Fan Clutch

(11) Inflatable Restraint Front End Sensor

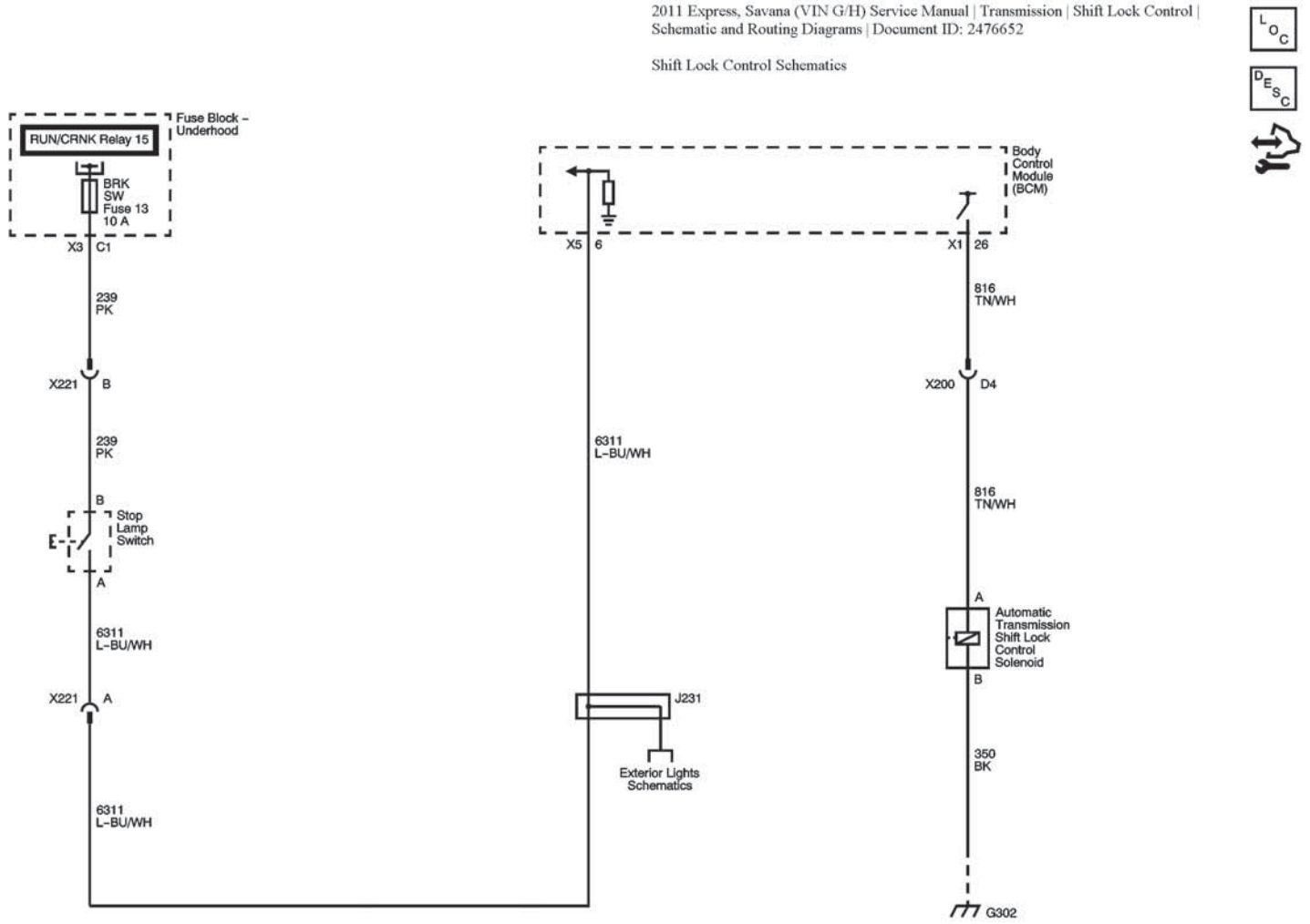
(12) Horn Assembly

(13) Windshield Washer Fluid Pump



## Remote Vehicle Immobilizer

For applications where it is desirable to leave the vehicle running but assure that it can not be moved an external +12 v signal can be supplied to the shift interlock solenoid assuring the vehicle will remain in park – see schematic and location drawings. Best access is a the steering column connector X-200 cavity D4 tan white 816 wire.

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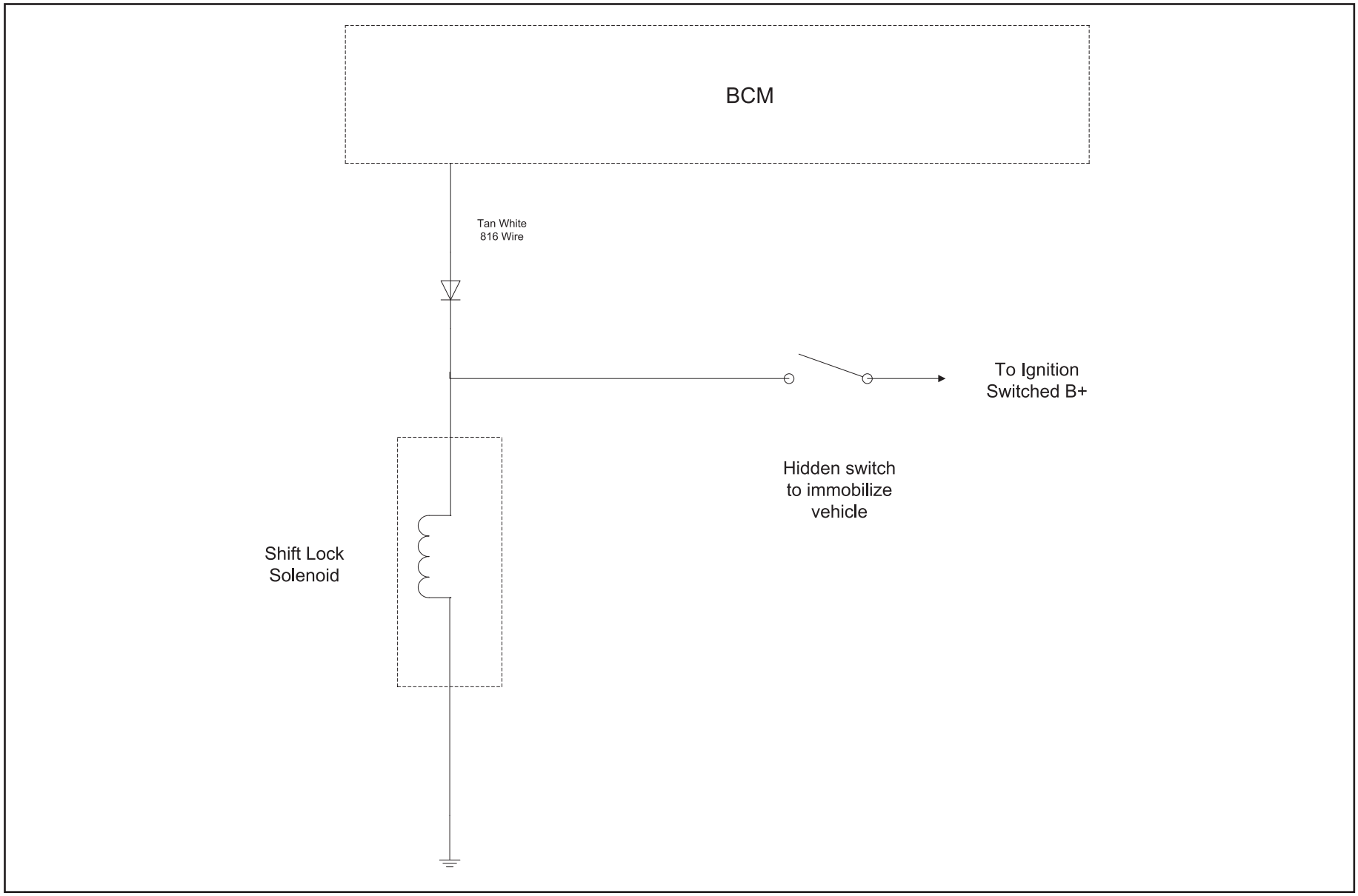
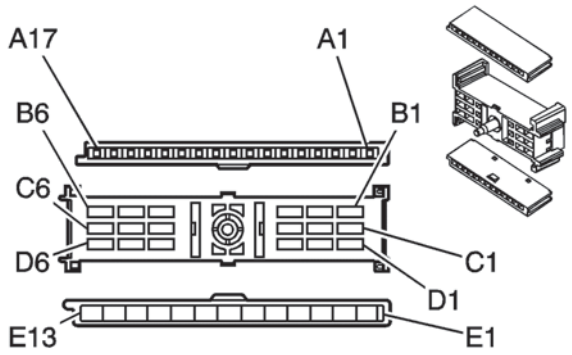
## Remote Vehicle Immobilizer, cont'd.



## X200 Steering Column Harness to Instrument Panel Harness

**Connector Part Information**




Harness: Steering Column

OEM: 12047842

Service: 12047842

Description: 17-Way F Metri-Pack 150 Series Unsealed (BK)

OEM: 12084183

Service: 12084183

Description: 18-Way F Metri-Pack 280 630 Series Unsealed (BK)

OEM: 12047840

Service: 12047840

Description: 13-Way F Metri-Pack 280 Series Unsealed (GY)

**Terminal Part Information**

Pins: B3, C3, D3-D4, E1, E3-E4, E8-E13

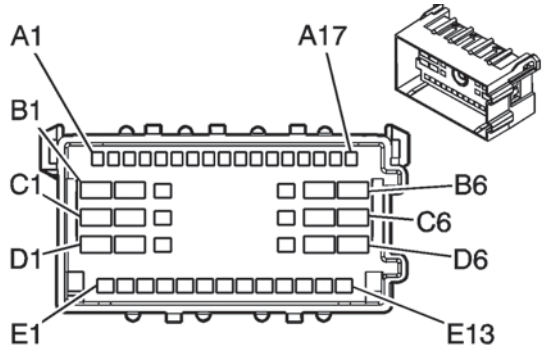
Terminal/Tray: 12034046/2

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 12094430/J-35616-4A (PU)

*(continued on next page)*

**Connector Part Information**




Harness: Instrument Panel

OEM: 15492579

Service: 88988982

Description: 48-Way M Metri-Pack 280 Series (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness, cont'd.

**Terminal Part Information:** Steering Column, *cont'd.*

Pins: A1-A3, A5-A6, A7-A9, A11-A17, B2, B5, C2, C4-C5, D2, E2, E5-E7

Terminal/Tray: 12064971/5

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Pins: B1, B6, C1, C6, D1, D5-D6

Terminal/Tray: 12015869/3

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 12094430/J-35616-42 (RD)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 28 | Horn Relay Control |
| A2 | -- | -- | Not Used |
| A3 | 0.35 PK | 1444 | 12-Volt Reference (K34) |
| A4-A5 | -- | -- | Not Used |
| A6 | 0.35 PK | 2239 | Ignition Voltage |
| A7-A8 | -- | -- | Not Used |
| A9 | 0.35 PK | 3 | Ignition Voltage |
| A10 | -- | -- | Not Used |
| A11 | 0.35 L-GN | 6818 | Steering Wheel Control Signal (W1Y) |
| A12 | 0.35 YE | 6046 | Steering Angle Sensor Phase A (JL4) |

***(continued on next page)***

Harness: Instrument Panel, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 28 | Horn Relay Control |
| A2 | -- | -- | Not Used |
| A3 | 0.35 PK | 1444 | 12-Volt Reference (K34) |
| A4-A5 | -- | -- | Not Used |
| A6 | 0.35 PK | 2239 | Ignition Voltage |
| A7-A8 | -- | -- | Not Used |
| A9 | 0.35 PK | 3 | Ignition Voltage |
| A10 | -- | -- | Not Used |
| A11 | 0.35 L-GN | 6818 | Steering Wheel Control Signal (W1Y) |
| A12 | 0.5 YE | 6046 | Steering Angle Sensor Phase A (JL4) |
| A13 | 0.35 D-GN/WH | 7158 | Cruise Control Indicator Dimming Signal (K34) |
| A14 | 0.5 D-BU | 6047 | Steering Angle Sensor Phase B (JL4) |
| A15 | 0.35 BN | 6136 | Supply Voltage (K34/W1Y) |
| A16 | 0.5 TN | 6048 | Steering Angle Sensor Phase C (JL4) |
| A17 | 0.35 GY | 1884 | Cruise Control Switch Signal (K34) |
| B1 | 0.35 RD/WH | 540 | Battery Positive Voltage |

***(continued on next page)***

## X200 Steering Column Harness to Instrument Panel Harness, cont'd.

Harness: Steering Column, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A13 | 0.35 D-GN/WH | 7158 | Cruise Control Indicator Dimming Signal (K34) |
| A14 | 0.35 D-BU | 6047 | Steering Angle Sensor Phase B (JL4) |
| A15 | 0.35 BN | 6136 | Supply Voltage (K34/W1Y) |
| A16 | 0.35 TN | 6048 | Steering Angle Sensor Phase C (JL4) |
| A17 | 0.35 GY | 1884 | Cruise Control Switch Signal (K34) |
| B1 | 0.35 RD/WH | 540 | Battery Positive Voltage |
| B2 | -- | -- | Not Used |
| B3 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| B4-B5 | -- | -- | Not Used |
| B6 | 0.35 PK | 1020 | Ignition Voltage |
| C1 | 0.35 WH | 530 | Ignition Voltage |
| C2 | -- | -- | Not Used |
| C3 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| C4-C5 | -- | -- | Not Used |
| C6 | 0.35 BN | 4 | Ignition Voltage |
| D1 | 0.35 TN/BK | 6009 | Low Reference |

*(continued on next page)*

Harness: Instrument Panel, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| B2 | -- | -- | Not Used |
| B3 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| B4-B5 | -- | -- | Not Used |
| B6 | 0.35 PK | 1020 | Ignition Voltage |
| C1 | 0.35 WH | 530 | Ignition Voltage |
| C2 | -- | -- | Not Used |
| C3 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| C4-C5 | -- | -- | Not Used |
| C6 | 0.35 BN | 4 | Ignition Voltage |
| D1 | 0.35 TN/BK | 6009 | Low Reference |
| D2 | -- | -- | Not Used |
| D3 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| **D4** | **0.5 TN/WH** | **816** | **A/T Shift Lock Solenoid Control** |
| D5 | 0.5 L-GN | 6043 | Steering Angle Sensor Signal (JL4) |
| D6 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| E1 | 0.5 BK | 350 | Ground |

*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness, cont'd.

Harness: Steering Column, *cont'd.*

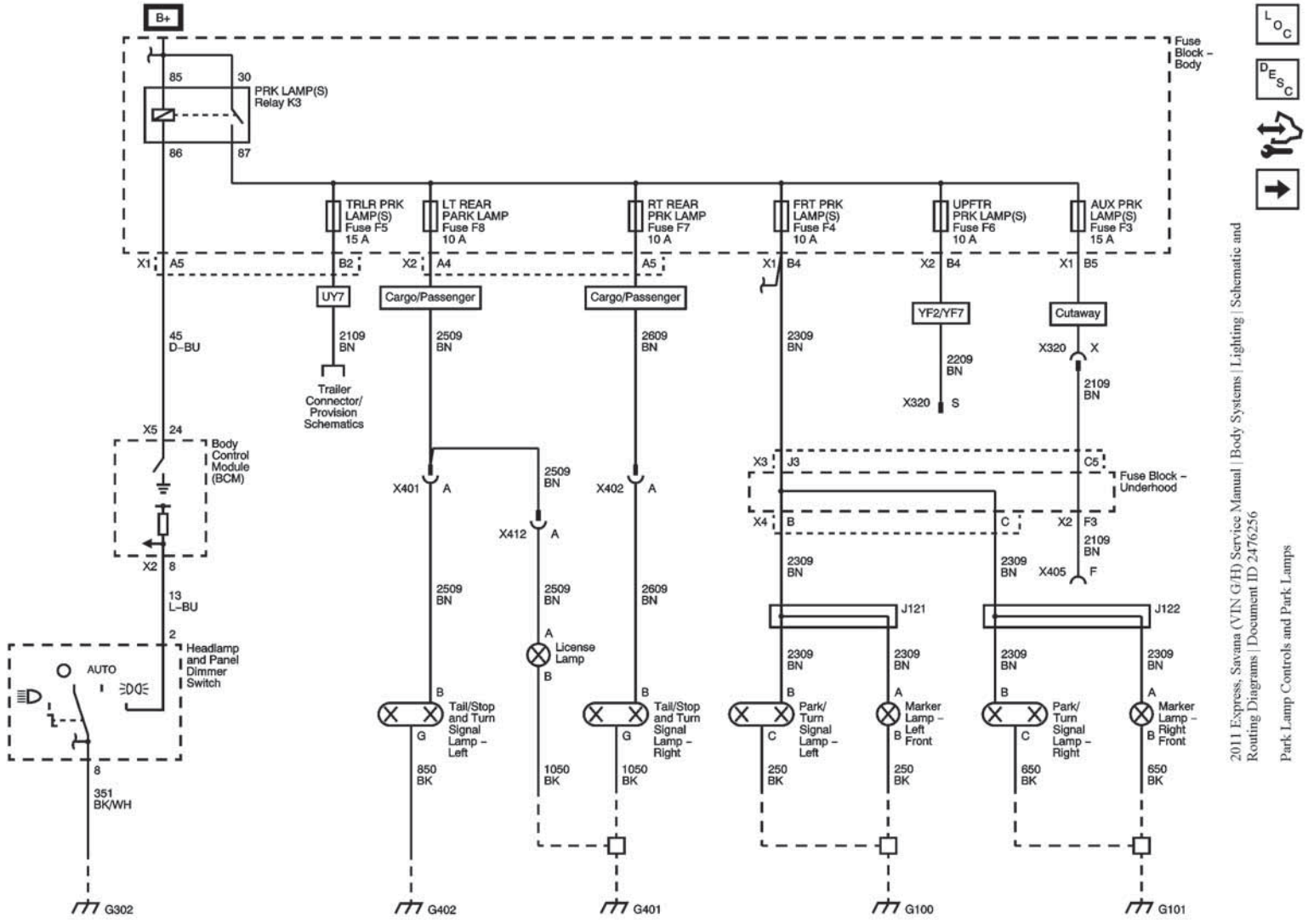
| Pin | Wire | Circuit | Function |
|---|---|---|---|
| D2 | -- | -- | Not Used |
| D3 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| **D4** | **0.5 TN/WH** | **816** | **A/T Shift Lock Solenoid Control** |
| D5 | 0.35 L-GN | 6043 | Steering Angle Sensor Signal (JL4) |
| D6 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| E1 | 0.5 BK | 350 | Ground |
| E2 | -- | -- | Not Used |
| E3 | 0.5 BK/WH | 351 | Ground |
| E4 | 0.35 OG/BK | 6045 | Low Reference (JL4) |
| E5-E7 | -- | -- | Not Used |
| E8 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| E9 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |
| E10 | 0.35 GY | 6044 | 5-Volt Reference (JL4) |
| E11 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| E12 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| E13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |

Harness: Instrument Panel, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| E2 | -- | -- | Not Used |
| E3 | 0.5 BK/WH | 351 | Ground |
| E4 | 0.5 OG/BK | 6045 | Low Reference (JL4) |
| E5-E7 | -- | -- | Not Used |
| E8 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| E9 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |
| E10 | 0.5 GY | 6044 | 5-Volt Reference (JL4) |
| E11 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| E12 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| E13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |

## Separated Stop/Turn

Separated stop and turn signals [at the rear lighting connector X405] are standard on all cutaway models. Option V4D provides both separated signals and LED compatibility [no fast flash for bulb outage detection ] on the rear signal lamps.

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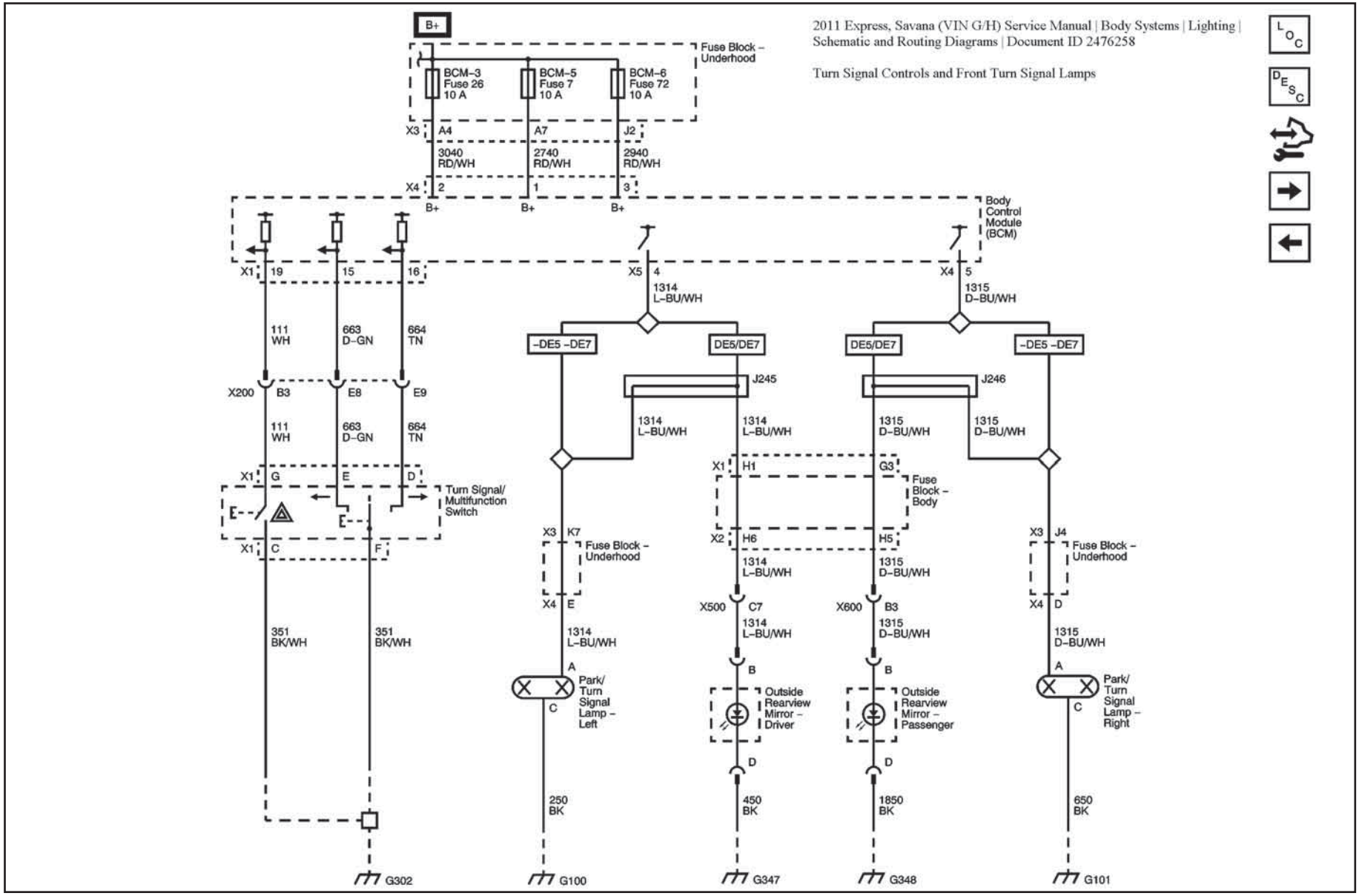
## Separated Stop/Turn, cont'd.

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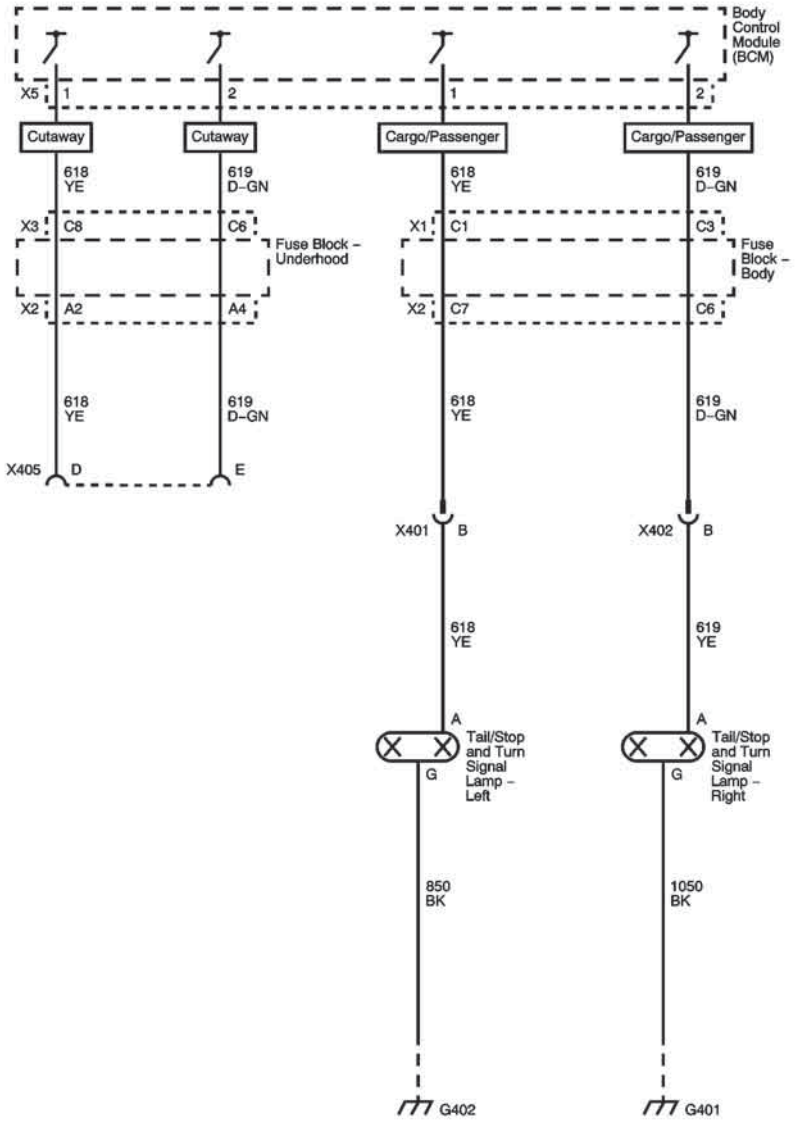
## Separated Stop/Turn, cont'd.




2011 Express, Savana (VIN G/H) Service Manual | Body Systems | Lighting | Schematic and Routing Diagrams | Document ID 2476260

Rear Turn Signal Lamps

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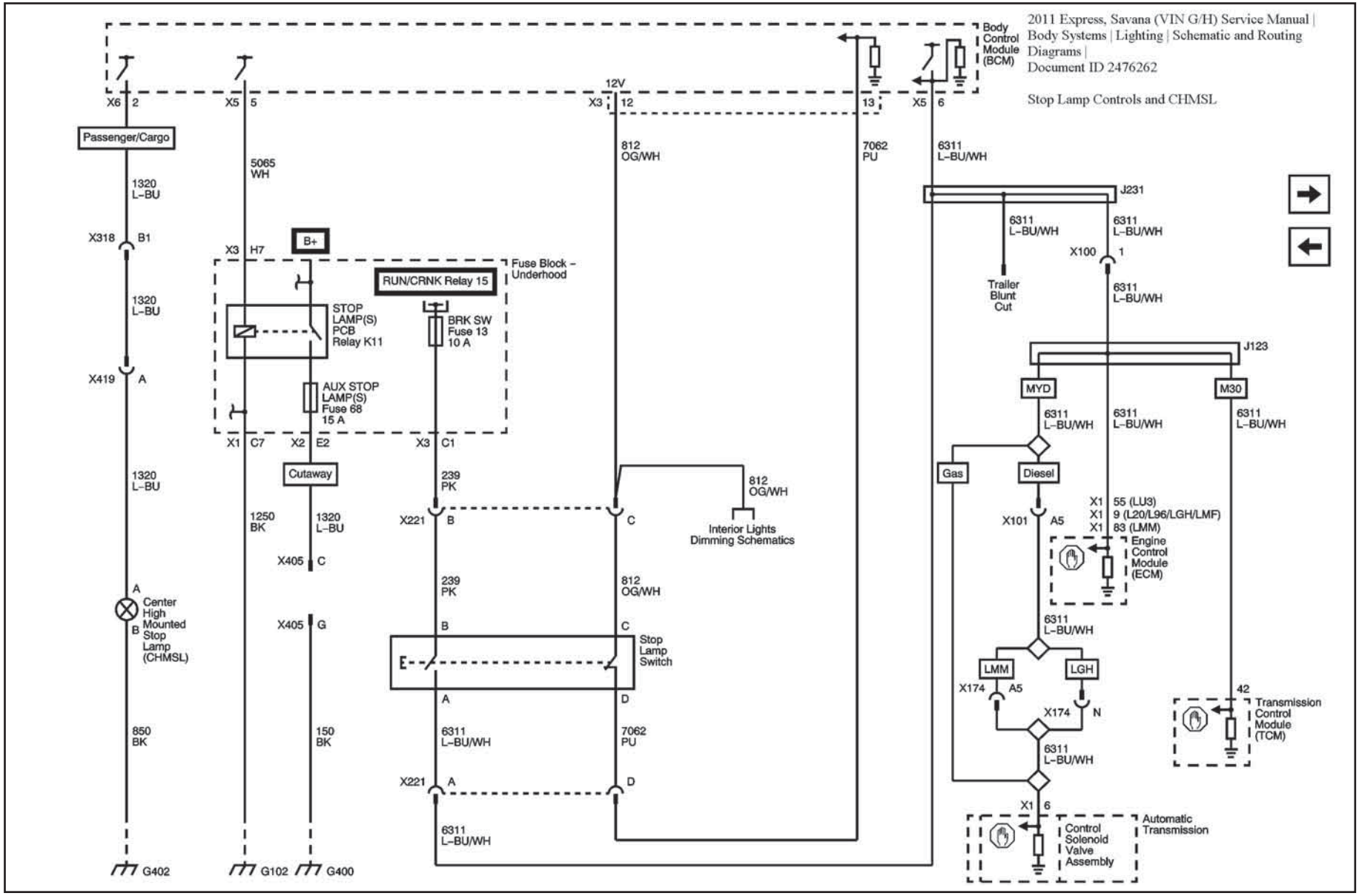
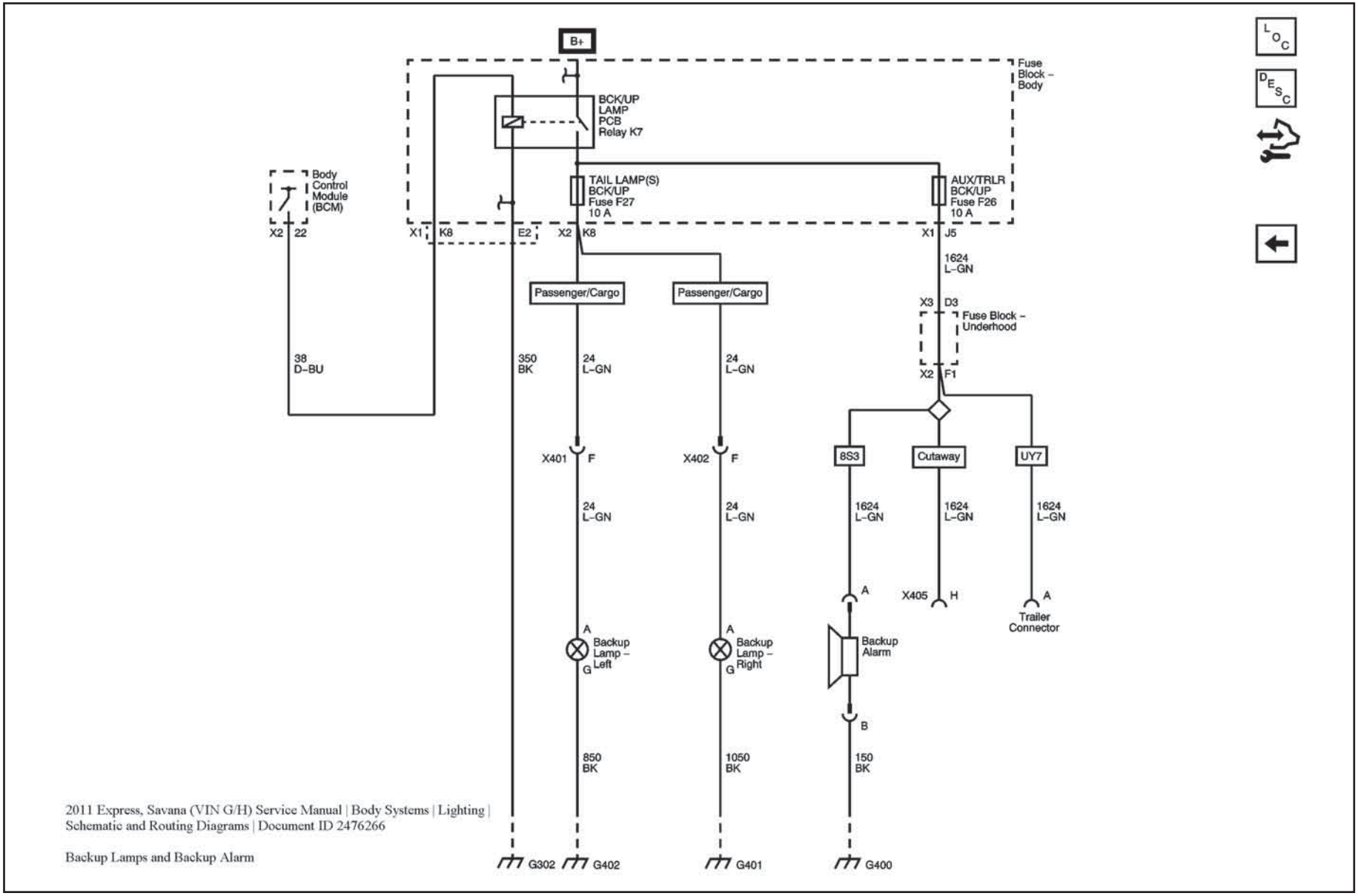
## Separated Stop/Turn, cont'd.



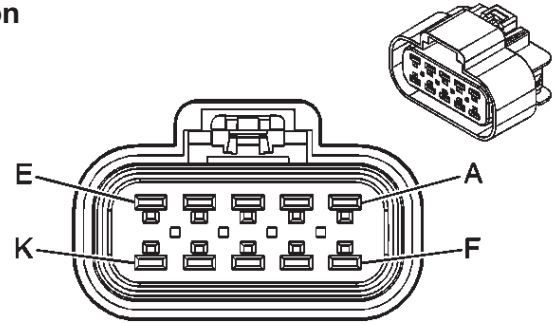

*(continued on next page)*

## Separated Stop/Turn, cont'd.



## X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway)

**Connector Part Information**




Harness: Cutaway Rear Lighting Connector

OEM: 15326660

Service: 88986262

Description: 10-Way F GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

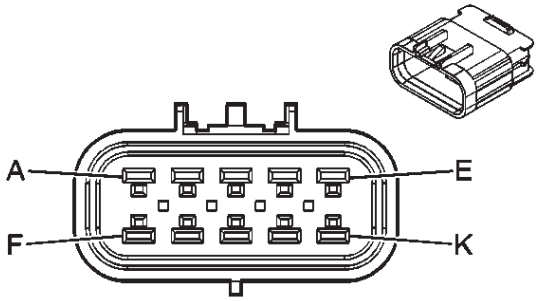
Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

**Connector Part Information**




Harness: Chassis

OEM: 15326661

Service: 88986245

Description: 10-Way M GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway), cont'd.

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 WH | 17 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 L-BU | 1320 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

## Park Neutral Signal

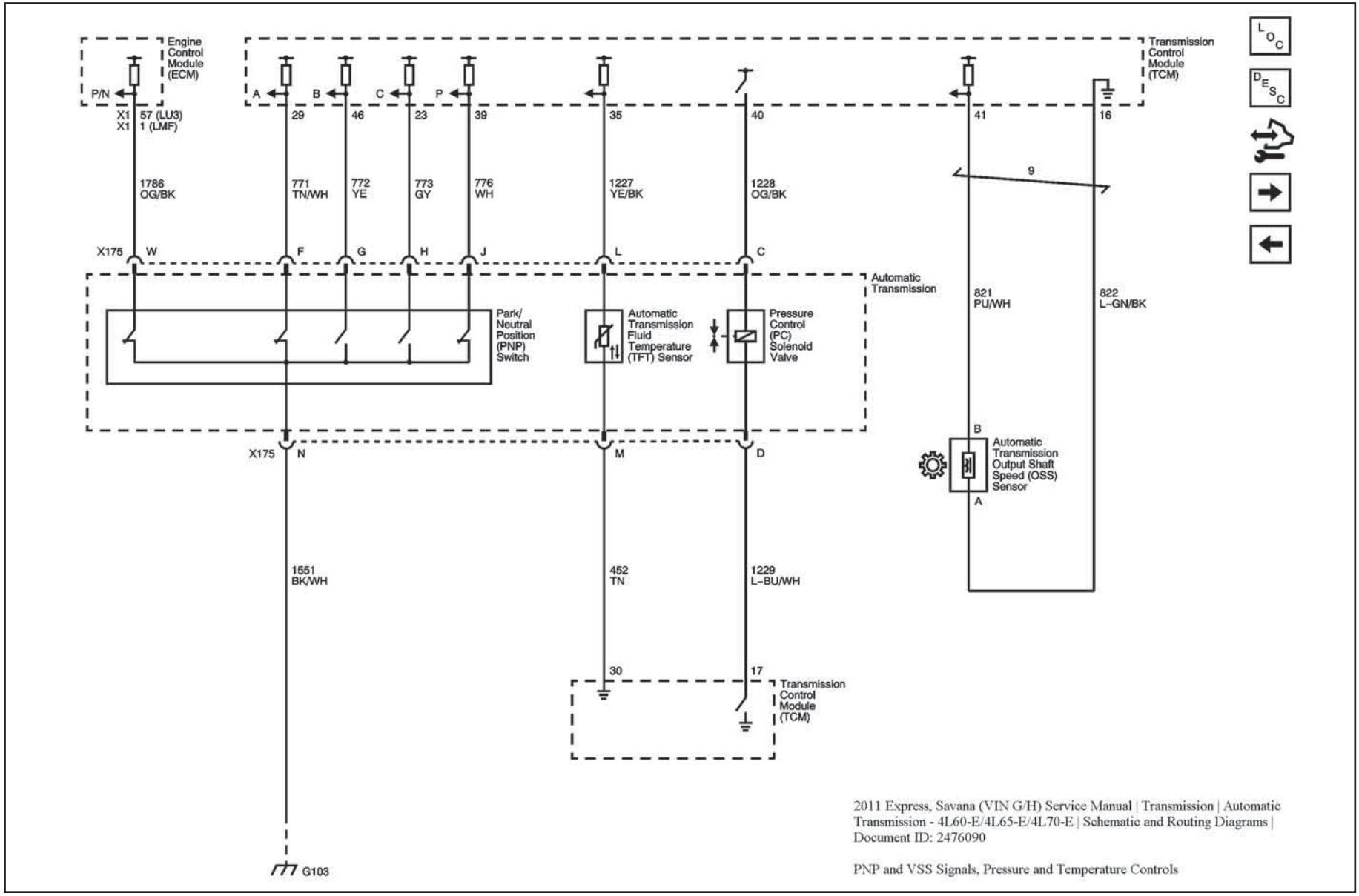
Park Neutral can be monitored in two ways.

1. The preferred method is to monitor the 816 tan white wire from the BCM which drives the shift lock solenoid. This signal goes to B+ when the ignition is ON and the vehicle is in Park. The BCM will drop power to this line when the brake is depressed. The 816 wire is in cavity D4 of X200.
2. When method 1 won't work there is a park/neutral switch in the transmission which supplies a ground signal directly to the engine controller. This is the 1786 orange black wire in the ECM connector [see ECM connector pin charts for specific pins based on engine type] which held low during park and neutral gear selections.

CAUTION: The PN switch or internal mode switch is very low current – intended to interface to a logic gate. You may NOT use it to close a relay unless the relay is very small with a coil current of less than 100 ma. It is best to detect this signal with a solid state gate which will have very small current draw. If you draw too much current from this circuit you will damage the switch and end up with a check engine light.

*(continued on next page)*

## Park Neutral Signal, cont'd.

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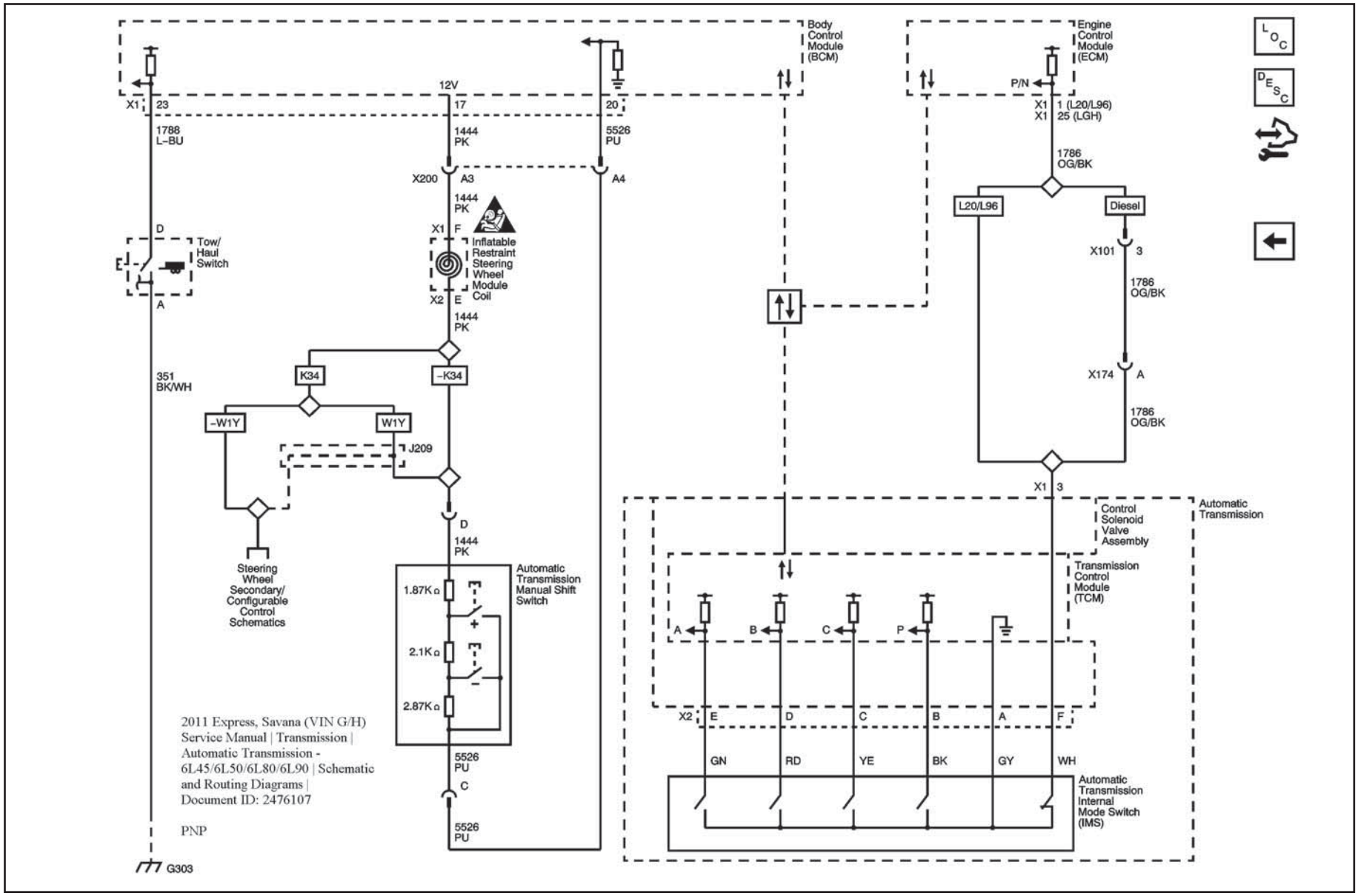
## Park Neutral Signal, cont'd.

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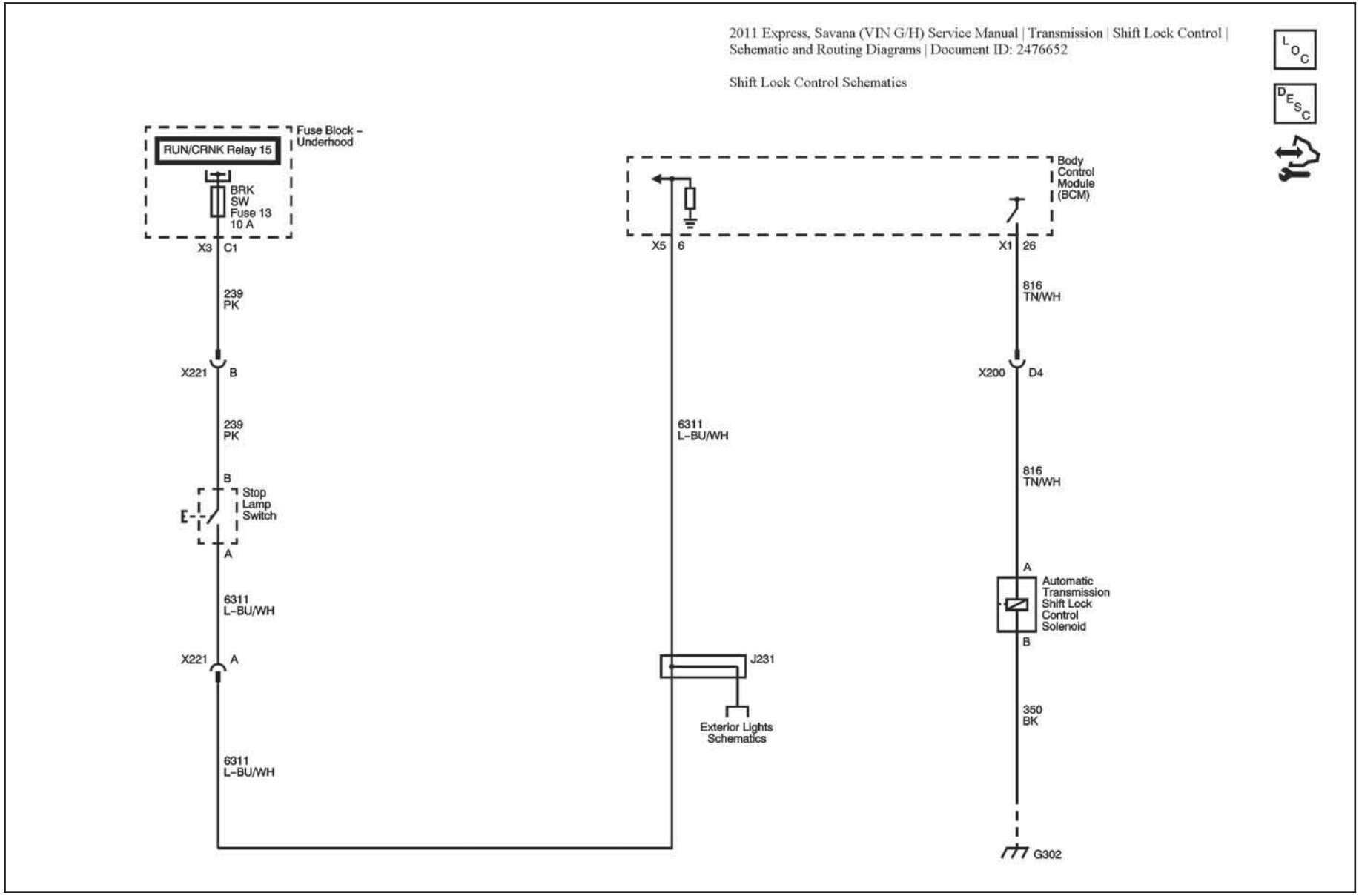
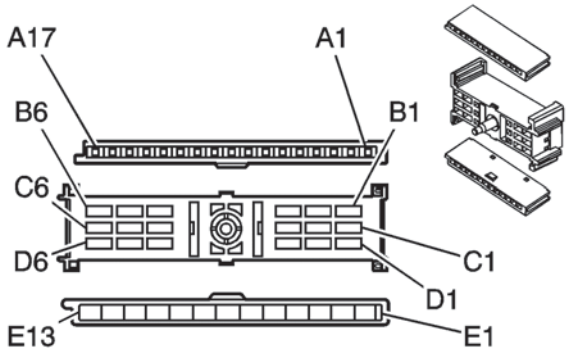
## Park Neutral Signal, cont'd.



## X200 Steering Column Harness to Instrument Panel Harness

**Connector Part Information**




Harness: Steering Column

OEM: 12047842

Service: 12047842

Description: 17-Way F Metri-Pack 150 Series Unsealed (BK)

OEM: 12084183

Service: 12084183

Description: 18-Way F Metri-Pack 280 630 Series Unsealed (BK)

OEM: 12047840

Service: 12047840

Description: 13-Way F Metri-Pack 280 Series Unsealed (GY)

**Terminal Part Information**

Pins: B3, C3, D3-D4, E1, E3-E4, E8-E13

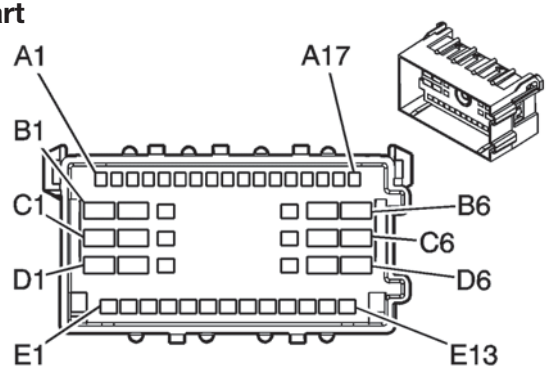
Terminal/Tray: 12034046/2

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 12094430/J-35616-4A (PU)

*(continued on next page)*

**Connector Part Information**




Harness: Instrument Panel

OEM: 15492579

Service: 88988982

Description: 48-Way M Metri-Pack 280 Series (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness, cont'd.

**Terminal Part Information:** Steering Column, *cont'd.*

Pins: A1-A3, A5-A6, A7-A9, A11-A17, B2, B5, C2, C4-C5, D2, E2, E5-E7

Terminal/Tray: 12064971/5

Core/Insulation Crimp: E/C

Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Pins: B1, B6, C1, C6, D1, D5-D6

Terminal/Tray: 12015869/3

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 12094430/J-35616-42 (RD)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 28 | Horn Relay Control |
| A2 | -- | -- | Not Used |
| A3 | 0.35 PK | 1444 | 12-Volt Reference (K34) |
| A4-A5 | -- | -- | Not Used |
| A6 | 0.35 PK | 2239 | Ignition Voltage |
| A7-A8 | -- | -- | Not Used |
| A9 | 0.35 PK | 3 | Ignition Voltage |
| A10 | -- | -- | Not Used |
| A11 | 0.35 L-GN | 6818 | Steering Wheel Control Signal (W1Y) |
| A12 | 0.35 YE | 6046 | Steering Angle Sensor Phase A (JL4) |
| A13 | 0.35 D-GN/WH | 7158 | Cruise Control Indicator Dimming Signal (K34) |

*(continued on next page)*

Harness: Instrument Panel, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 28 | Horn Relay Control |
| A2 | -- | -- | Not Used |
| A3 | 0.35 PK | 1444 | 12-Volt Reference (K34) |
| A4-A5 | -- | -- | Not Used |
| A6 | 0.35 PK | 2239 | Ignition Voltage |
| A7-A8 | -- | -- | Not Used |
| A9 | 0.35 PK | 3 | Ignition Voltage |
| A10 | -- | -- | Not Used |
| A11 | 0.35 L-GN | 6818 | Steering Wheel Control Signal (W1Y) |
| A12 | 0.5 YE | 6046 | Steering Angle Sensor Phase A (JL4) |
| A13 | 0.35 D-GN/WH | 7158 | Cruise Control Indicator Dimming Signal (K34) |
| A14 | 0.5 D-BU | 6047 | Steering Angle Sensor Phase B (JL4) |
| A15 | 0.35 BN | 6136 | Supply Voltage (K34/W1Y) |
| A16 | 0.5 TN | 6048 | Steering Angle Sensor Phase C (JL4) |
| A17 | 0.35 GY | 1884 | Cruise Control Switch Signal (K34) |
| B1 | 0.35 RD/WH | 540 | Battery Positive Voltage |
| B2 | -- | -- | Not Used |
| B3 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| B4-B5 | -- | -- | Not Used |

*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness, cont'd.

Harness: Steering Column, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A14 | 0.35 D-BU | 6047 | Steering Angle Sensor Phase B (JL4) |
| A15 | 0.35 BN | 6136 | Supply Voltage (K34/W1Y) |
| A16 | 0.35 TN | 6048 | Steering Angle Sensor Phase C (JL4) |
| A17 | 0.35 GY | 1884 | Cruise Control Switch Signal (K34) |
| B1 | 0.35 RD/WH | 540 | Battery Positive Voltage |
| B2 | -- | -- | Not Used |
| B3 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| B4-B5 | -- | -- | Not Used |
| B6 | 0.35 PK | 1020 | Ignition Voltage |
| C1 | 0.35 WH | 530 | Ignition Voltage |
| C2 | -- | -- | Not Used |
| C3 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| C4-C5 | -- | -- | Not Used |
| C6 | 0.35 BN | 4 | Ignition Voltage |
| D1 | 0.35 TN/BK | 6009 | Low Reference |
| D2 | -- | -- | Not Used |
| D3 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| D4 | 0.5 TN/WH | 816 | A/T Shift Lock Solenoid Control |

*(continued on next page)*

Harness: Instrument Panel, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| B6 | 0.35 PK | 1020 | Ignition Voltage |
| C1 | 0.35 WH | 530 | Ignition Voltage |
| C2 | -- | -- | Not Used |
| C3 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| C4-C5 | -- | -- | Not Used |
| C6 | 0.35 BN | 4 | Ignition Voltage |
| D1 | 0.35 TN/BK | 6009 | Low Reference |
| D2 | -- | -- | Not Used |
| D3 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| D4 | 0.5 TN/WH | 816 | A/T Shift Lock Solenoid Control |
| D5 | 0.5 L-GN | 6043 | Steering Angle Sensor Signal (JL4) |
| D6 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| E1 | 0.5 BK | 350 | Ground |
| E2 | -- | -- | Not Used |
| E3 | 0.5 BK/WH | 351 | Ground |
| E4 | 0.5 OG/BK | 6045 | Low Reference (JL4) |
| E5-E7 | -- | -- | Not Used |
| E8 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| E9 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |

*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness, cont'd.

Harness: Steering Column, *cont'd.*

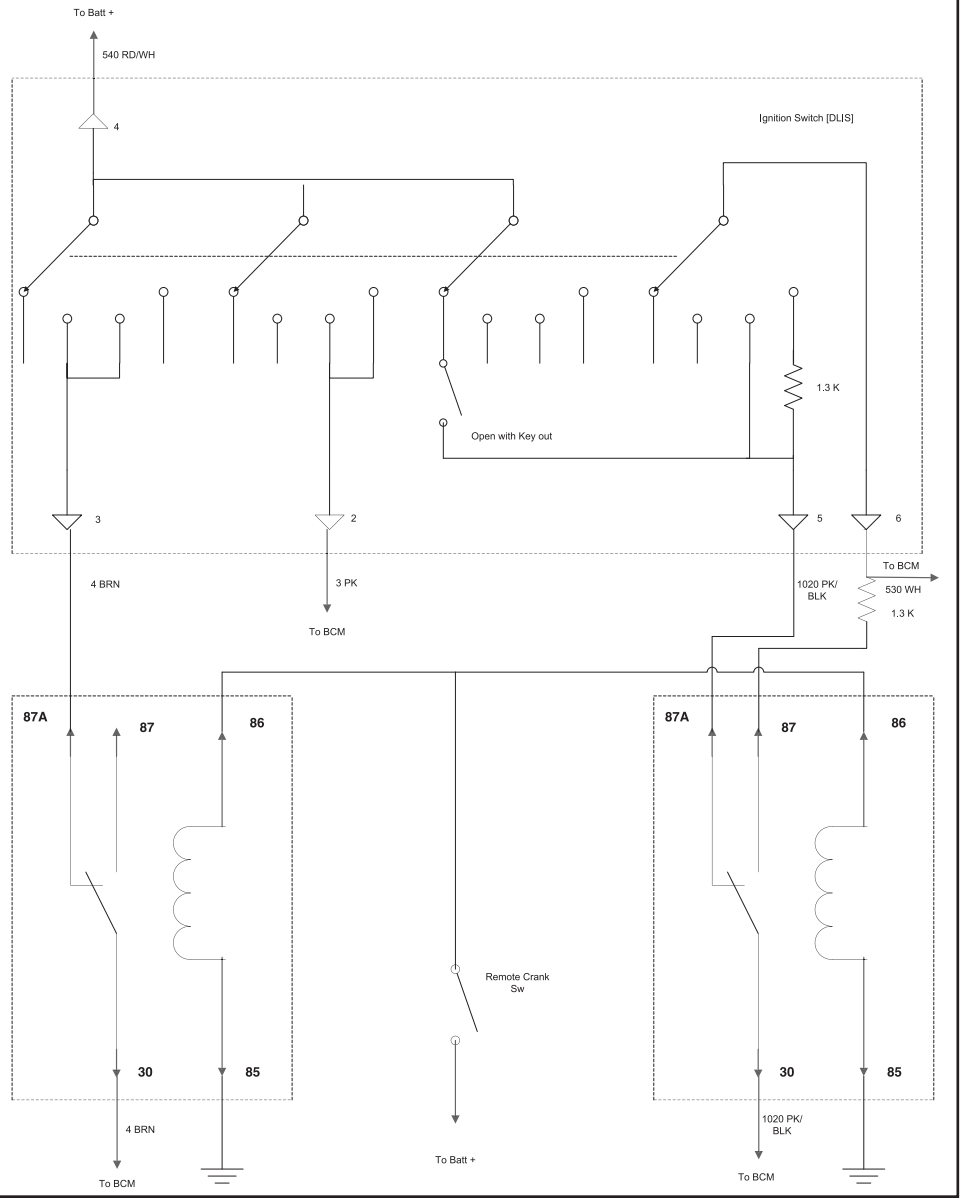
| Pin | Wire | Circuit | Function |
|---|---|---|---|
| D5 | 0.35 L-GN | 6043 | Steering Angle Sensor Signal (JL4) |
| D6 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| E1 | 0.5 BK | 350 | Ground |
| E2 | -- | -- | Not Used |
| E3 | 0.5 BK/WH | 351 | Ground |
| E4 | 0.35 OG/BK | 6045 | Low Reference (JL4) |
| E5-E7 | -- | -- | Not Used |
| E8 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| E9 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |
| E10 | 0.35 GY | 6044 | 5-Volt Reference (JL4) |
| E11 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| E12 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| E13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |

Harness: Instrument Panel, *cont'd.*

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| E10 | 0.5 GY | 6044 | 5-Volt Reference (JL4) |
| E11 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| E12 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| E13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |

## Remote Start Stop

There is no OEM provision to remotely start and stop this vehicle. The best work around solution is to implement the wiring called out in the drawings GM Truck – CK GH Remote Crank and GM Trucks – CK GH – Engine Kill Sw. This method requires the key to be left in the ignition in the RUN position. If desired an interlock can be installed to immobilize the vehicle while in the remote modes. The schematic for this is in the Immobilizer quick reference.

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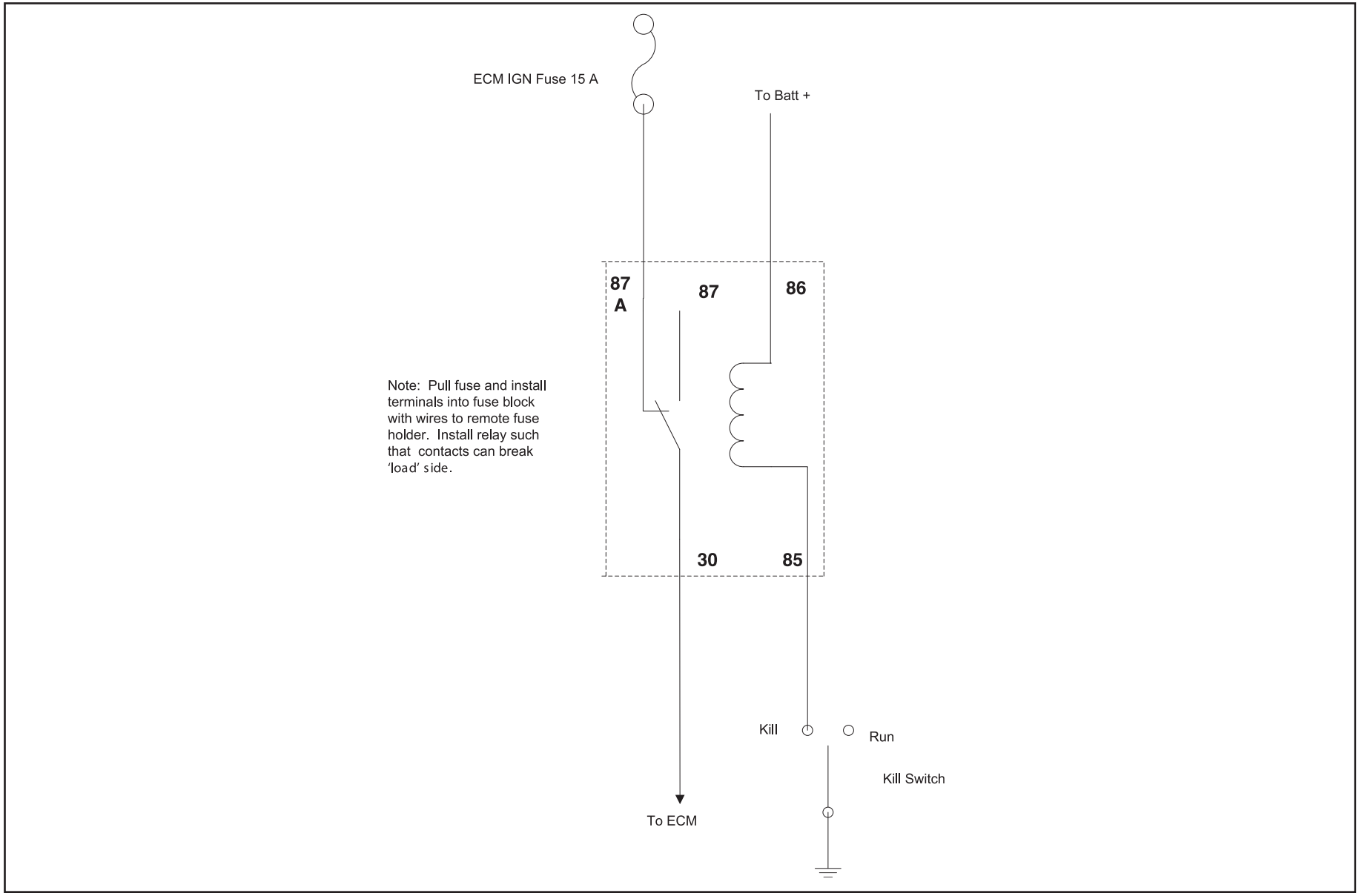
## Remote Start Stop, cont'd.



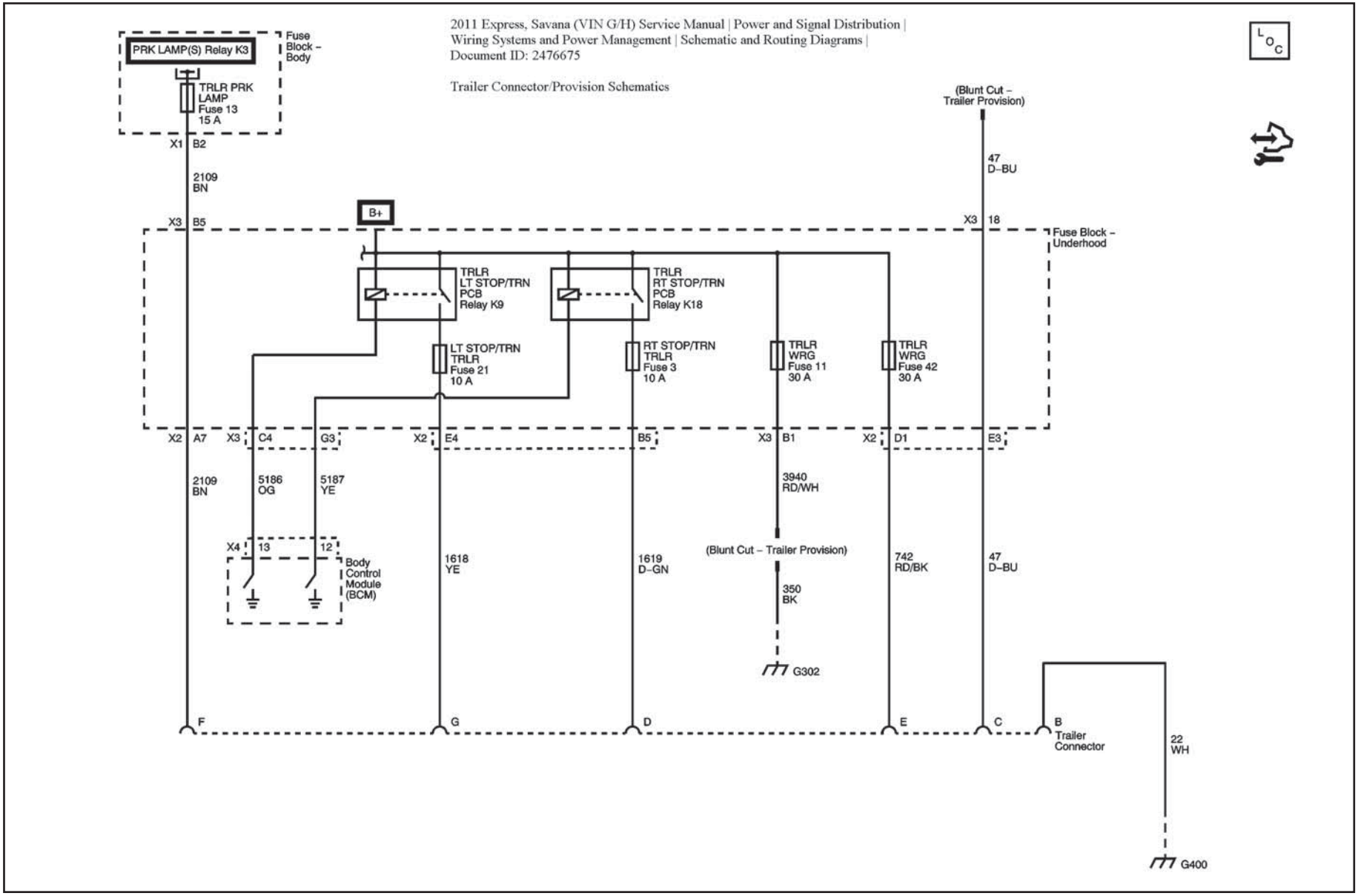
## Trailer Wiring

If your vehicle does not have the trailer wiring provisions none of the relays and in cab wires will be present. The lamp driver circuits coming out of the Body Control Module BCM are not robust enough to handle the current requirements for a trailer plug. You will need to obtain control signals to operate power relays for each lighting function on your trailer plug. The coils of the power relays will be connected to the subject lamp circuit and ground such that the lamp signal will close the relay and allow the contacts to switch fused battery power to the appropriate trailer connector pin. Automotive rated relays must be used with noise suppression across the coils so noise spikes are not fed back into the OEM system. The rear lighting connector X405 contains all the lighting signals that will be required and the relay grounds may be connected to the cavity G black 150 wire. Your trailer plug ground must go to an appropriate body ground stud and may not be connected to the X405 ground.

If you are adding an aftermarket trailer brake controller to your vehicle you can use the CHMSL signal in X405-C [light blue 1320 wire] as your control signal for brake switch input to the controller. You will need to provide a power feed for the controller and if an ignition control input is required you can get that signal from any of the RUN/Crank fuses [see run/crank schematic] in the underhood fuse relay center

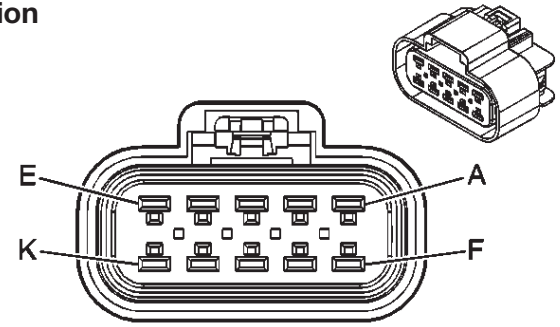
*(continued on next page)*

## Trailer Wiring, cont'd.



## X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway)

**Connector Part Information**




Harness: Cutaway Rear Lighting Connector

OEM: 15326660

Service: 88986262

Description: 10-Way F GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

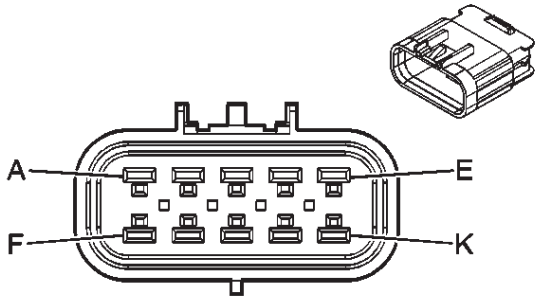
Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

**Connector Part Information**




Harness: Chassis

OEM: 15326661

Service: 88986245

Description: 10-Way M GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

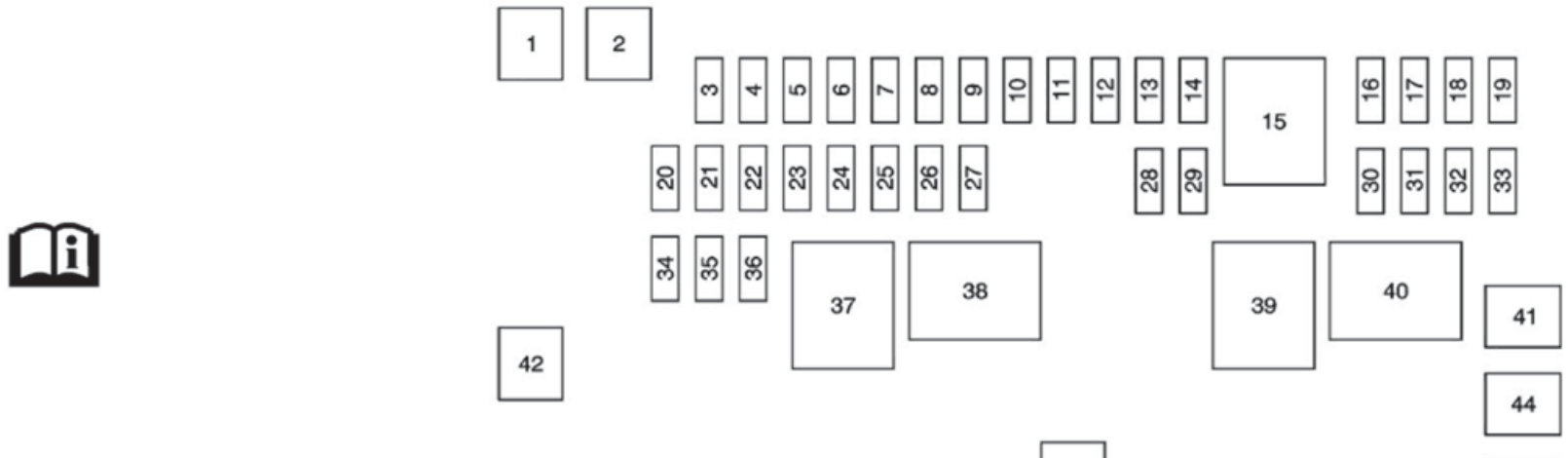
*(continued on next page)*

## X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway), cont'd.

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 WH | 17 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 L-BU | 1320 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

## Fuse Block - Underhood Label




MINI FUSES

| | | | |
|---|---|---|---|
| 3 | 15A | RT STOP/TRN TRLR | |
| 4 | 10A | SPARE | |
| 5 | 10A | SPARE | |
| 6 | 10A | FSCM IGN | |
| 7 | 10A | BCM–5 | |
| 8 | 10A | BCM–7 | |
| 9 | 10A | BCM–4 | |
| 10 | 10A | IPC | |
| 11 | 30A | TRLR WRG | |
| 12 | 10A | SPARE | |
| 13 | 10A | BRK SW | |
| 14 | 15A | WASH | |
| 16 | 20A | HORN | |
| 17 | 15A | TRANS | |
| 18 | 15A | A/C CMPRSR | |
| 19 | 10A | ECM BATT | |
| 20 | 10A | SPARE | |
| 21 | 15A | LT STOP/TRN TRLR | |
| 22 | 10A | SPARE | |
| 23 | 15A | SPARE | |
| 24 | 30A | GAS FUEL PUMP | |
| 24 | 20A | DIESEL FUEL PUMP | |
| 25 | 20A | AUX PWR OUTLET | |
| 26 | 10A | BCM–3 | |
| 27 | 10A | SEO | |
| 28 | 10A | AIRBAG | |
| 29 | 10A | STR/WHL/SNSR | |
| 30 | 15A | ECM IGN/GLOW PLUG MDL IGN | |
| 31 | 15A | TCM IGN | |
| 32 | 10A | TCM BATT | |
| 33 | 15A | SPARE | |
| 34 | 15A | SPARE | |
| 35 | 15A | FOH MDL | |
| 36 | 20A | FSCM BATT | |
| 51 | 10A | LT HI BEAM | |
| 52 | 10A | RT HI BEAM | |
| 53 | 10A | LT LO BEAM | |
| 54 | 10A | RT LO BEAM | |
| 55 | 25A | WPR | |
| 56 | 10A | CNSTR VENT SOL | |
| 58 | 10A | BCM–2 | |
| 59 | 10A | BCM–1 | |
| 61 | 15A | SPARE | |
| 62 | 10A | O2 SNSR 2 (POST) | |
| 63 | 10A | FAN CLTCH (EV) | |
| 64 | 15A | MAF/CNSTR VENT | |
| 65 | 20A | ODO IGN/INJ | |
| 66 | 10A | DRL 2 (LOLVL–V22) | |
| 67 | 15A | DRL 1 (LOLVL–V22) | |
| 68 | 15A | AUX STOP LAMP (S) | |
| 69 | 10A | SPARE | |
| 70 | | | |
| 71 | 15A | FUEL HTR | |
| 72 | 10A | BCM–6 | |
| 73 | 20A | LTR/DLC | |
| 75 | 15A | V6 FUEL INJ | |
| 76 | 10A | SPARE | |
| 77 | 10A | O2 SNSR 1 (PRE) /CLS | |
| 78 | 10A | ECM PWR/TRN | |
| 79 | 20A | EVEN IGN/INJ | |

J–CASE FUSE

| | | |
|---|---|---|
| 1 | 50A | ABS MTR |
| 2 | 40A | ABS MDL |
| 41 | 20A | SPARE |
| 42 | 30A | TRLR WRG |
| 43 | 40A | FAN HI |
| 44 | 40A | STRTR SOL |
| 45 | 30A | ECM PWR/TRN |
| 46 | 30A | SPARE |
| 47 | 40A | FAN LO |
| 74 | 40A | FRT BLWR |

RELAYS

| | | |
|---|---|---|
| 15 | MICRO G8V | RUN/CRNK |
| 37 | MICRO G8V | SPARE |
| 38 | MICRO G8V | FUEL PUMP |
| 39 | MICRO G8V | CRNK |
| 40 | MICRO G8V | A/C CMPRSR |
| 48 | MICRO G8V | FAN HI |
| 49 | MICRO G8V | PWR/TRN |
| 50 | SOLID STATE | FAN CLTCH (EV) |
| 57 | MICRO G8V | FAN LO |
| 60 | MICRO G8V | FAN CNTRL |

CIRCUIT BOARD RELAY (NOT SHOWN)

| | |
|---|---|
| K3 | WPR HI |
| K5 | HORN/WASH |
| K6 | LO BEAM |
| K7 | HI BEAM |
| K9 | TRLR LT STOP/TRN |
| K11 | STOP LAMP (S) |
| K13 | WPR |
| K18 | TRLR RT STOP/TRN |
| K19 | DRL |

## Fuse Block – Underhood – Label Usage

| No. | Device | Rating | Description |
|---|---|---|---|
| 1 | ABS MTR Fuse | 50A | Electronic Brake Control Module (EBCM) |
| 2 | ABS MDL Fuse | 40A | Electronic Brake Control Module (EBCM) |
| 3 | RT STOP/TRN TRLR Fuse | 15A | Trailer Connector |
| 4 | SPARE Fuse | 10A | Not Used |
| 5 | SPARE Fuse | 10A | Not Used |
| 6 | FCSM IGN Fuse | 10A | Fuel Pump Flow Control Module (LMF) |
| 7 | BCM-5 Fuse | 10A | Body Control Module |
| 8 | BCM-7 Fuse | 10A | Body Control Module |
| 9 | BCM-4 Fuse | 10A | Body Control Module |
| 10 | IPC Fuse | 10A | Instrument Panel Cluster (IPC) |
| 11 | TRLR WRG Fuse | 30A | Blunt Cut (UY7) |
| 12 | SPARE Fuse | 10A | Not Used |
| 13 | BRK SW Fuse | 10A | Stop Lamp Switch |
| 14 | WASH Fuse | 15A | Windshield Washer Fluid Pump |
| 15 | RUN/CRNK Relay | -- | AIRBAG, BRK SW, ECM IGN/GLOW PLUG MDL IGN, FCSM IGN (LMF), IPC, STR/WHL/SNSR (JL4), TCM IGN and TRANS Fuses |
| 16 | HORN Fuse | 20A | Horn Assembly |
| 17 | TRANS Fuse | 15A | Automatic Transmission |
| 18 | A/C CMPRSR Fuse | 15A | A/C Compressor Clutch (C60) |
| 19 | ECM BATT Fuse | 10A | Engine Control Module (ECM) (L20, LMF or L96) |
| 20 | SPARE Fuse | 10A | Not Used |
| 21 | LT STOP/TRN TRLR Fuse | 15A | Trailer Connector |
| 22 | SPARE Fuse | 10A | Not Used |
| 23 | SPARE Fuse | 15A | Not Used |

| No. | Device | Rating | Description |
|---|---|---|---|
| 24 | FUEL PUMP Fuse | 30A | Fuel Pump and Sender Assembly (LU3, L20 or L96) |
| | | 20A | Fuel Pump (LMM or LGH) |
| 25 | AUX PWR OUTLET Fuse | 20A | Accessory Power Outlet - Center Console 2 |
| 26 | BCM-3 Fuse | 10A | Body Control Module |
| 27 | SEO Fuse | 10A | Instrument Panel Cluster (IPC) (8S8) |
| 28 | AIRBAG Fuse | 10A | Inflatable Restraint I/P Module Disable Switch (C99) or Inflatable Restraint I/P Module Indicator (without C99) and Inflatable Restraint Sensing and Diagnostic Module (SDM) |
| 29 | STR/WHL/ SNSR Fuse | 10A | Steering Wheel Speed/Position Sensor (JL4) |
| 30 | ECM IGN/ GLOW PLUG MDL IGN Fuse | 15A | Engine Control Module (ECM) (LU3, L20, LMF or L96) or Glow Plug Control Module (GPCM) (LMM or LGH) |
| 31 | TCM IGN Fuse | 15A | Transmission Control Module (TCM) |
| 32 | TCM BATT Fuse | 10A | Control Solenoid Valve Assembly (MYD) or Transmission Control Module (TCM) (M30) |
| 33 | SPARE Fuse | 15A | Not Used |
| 34 | SPARE Fuse | 15A | Not Used |
| 35 | FOH MDL Fuse | 15A | Coolant Heater (LMM with K08) |
| 36 | FCSM BATT Fuse | 20A | Fuel Pump Flow Control Module (LMF) |
| 37 | SPARE Relay | -- | Not Used |
| 38 | FUEL PUMP Relay | -- | FUEL PUMP Fuse (except LMF) |
| 39 | CRNK Relay | -- | STRTR SOL Fuse |
| 40 | A/C CMPRSR Relay | -- | A/C CMPRSR Fuse |
| 41 | SPARE Fuse | 20A | Not Used |



*(continued on next page)*

## Fuse Block – Underhood – Label Usage (cont'd)

| No. | Device | Rating | Description |
|---|---|---|---|
| 42 | TRLR WRG Fuse | 30A | Trailer Connector (UY7) |
| 43 | FAN HI Fuse | 40A | Not Used |
| 44 | STRTR SOL Fuse | 40A | Starter Motor |
| 45 | ECM PWR/ TRN Fuse | 30A | Engine Control Module (ECM) (LMM or LGH) |
| 46 | SPARE Fuse | 30A | Not Used |
| 47 | FAN LO Fuse | 40A | Not Used |
| 48 | FAN HI Relay | -- | Not Used |
| 49 | PWR/TRN Relay | -- | ECM PWR/TRN, EVEN IGN/INJ (L20, LMF or L96), FAN CLTCH (EV) (LMM or LGH), FUEL HTR (LMM or LGH), MAF/CNSTR VENT, O2 SNSR 1 (PRE)/CLS (L20, LMF or L96), O2 SNSR 2 (POST) (L20, LMF or L96), ODD IGN/INJ (L20, LMF or L96) and V6 FUEL INJ (LU3) Fuses |
| 50 | FAN CLTCH (EV) Relay | -- | Engine Cooling Fan (LMM or LGH) |
| 51 | LT HI BEAM Fuse | 10A | Headlamp - Left High Beam (Composite) or Headlamp - Left (Sealed) |
| 52 | RT HI BEAM Fuse | 10A | Headlamp - Right High Beam (Composite) or Headlamp - Right (Sealed) |
| 53 | LT LO BEAM Fuse | 10A | Headlamp - Left Low Beam (Composite) or Headlamp - Left (Sealed) |
| 54 | RT LO BEAM Fuse | 10A | Headlamp - Right Low Beam (Composite) or Headlamp - Right (Sealed) |
| 55 | WPR Fuse | 25A | WPR PCB Relay |
| 56 | CNSTR VENT SOL Fuse | 10A | Evaporative Emission (EVAP) Canister Vent Solenoid Valve (LU3, L20, LMF or L96) |
| 57 | FAN LO Relay | -- | Not Used |
| 58 | BCM-2 Fuse | 10A | Body Control Module |
| 59 | BCM-1 Fuse | 10A | Body Control Module |

| No. | Device | Rating | Description |
|---|---|---|---|
| 60 | FAN CNTRL Relay | -- | Not Used |
| 61 | SPARE Fuse | 15A | Not Used |
| 62 | O2 SNSR 2 (POST) Fuse | 10A | HO2S Bank 1 Sensor 2 (LU3, L20, LMF or L96) and HO2S Bank 2 Sensor 2 (LU3, L20, LMF or L96) |
| 63 | FAN CLTCH (EV) Fuse | 10A | FAN CLTCH (EV) Relay (LMM or LGH) |
| 64 | MAF/CNSTR VENT Fuse | 15A | Evaporative Emission (EVAP) Canister Purge Solenoid Valve (LU3, L20, LMF or L96) and Mass Air Flow (MAF)/Intake Air Temperature (IAT) Sensor |
| 65 | ODD IGN/INJ Fuse | 20A | Ignition Control Module (LU3), Odd Fuel Injectors (L20, LMF or L96) and Odd Ignition Coils (L20, LMF or L96) |
| 66 | DRL2 (LOLVL-V22) Fuse | 10A | Headlamp - Left (Sealed) and LT LO BEAM Fuse |
| 67 | DRL 1 (LOLVL-V22) Fuse | 15A | Headlamp - Left Low Beam (Composite) and LT LO BEAM Fuse |
| 68 | AUX STOP LAMP(S) Fuse | 15A | X405 (Cutaway) |
| 69 | SPARE Fuse | 10A | Not Used |
| 70 | SPARE Fuse | -- | Not Used |
| 71 | FUEL HTR Fuse | 15A | Fuel Heater (LMM or LGH) |
| 72 | BCM-6 Fuse | 10A | Body Control Module |
| 73 | LTR/DLC Fuse | 20A | Accessory Power Outlet - Center Console 1 (without DT4) or Cigar Lighter (DT4) and Data Link Connector (DLC) |
| 74 | FRT BLWR Fuse | 40A | Blower Motor Resistor |
| 75 | V6 FUEL INJ Fuse | 15A | Fuel Injectors (LU3) |

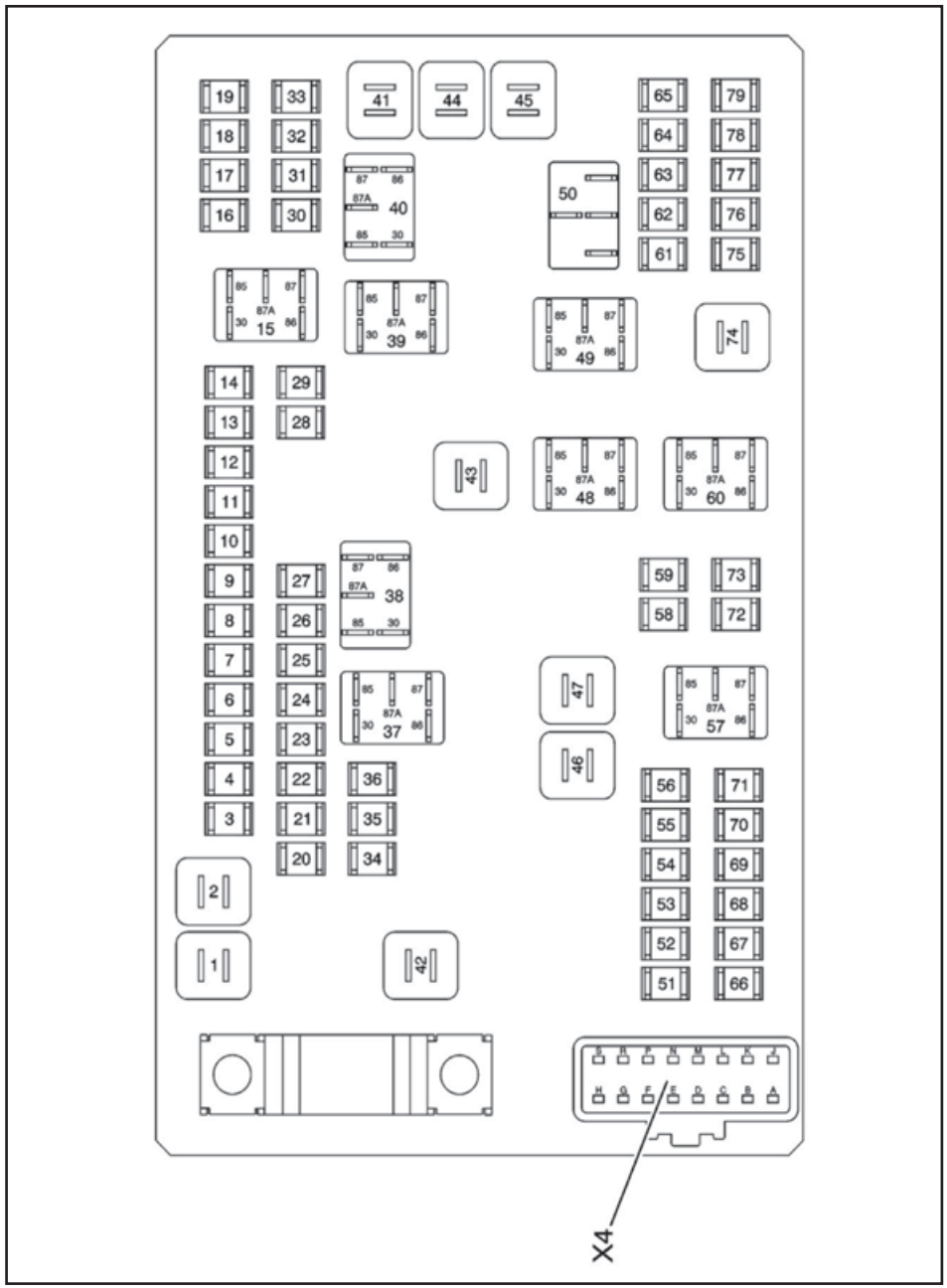


*(continued on next page)*

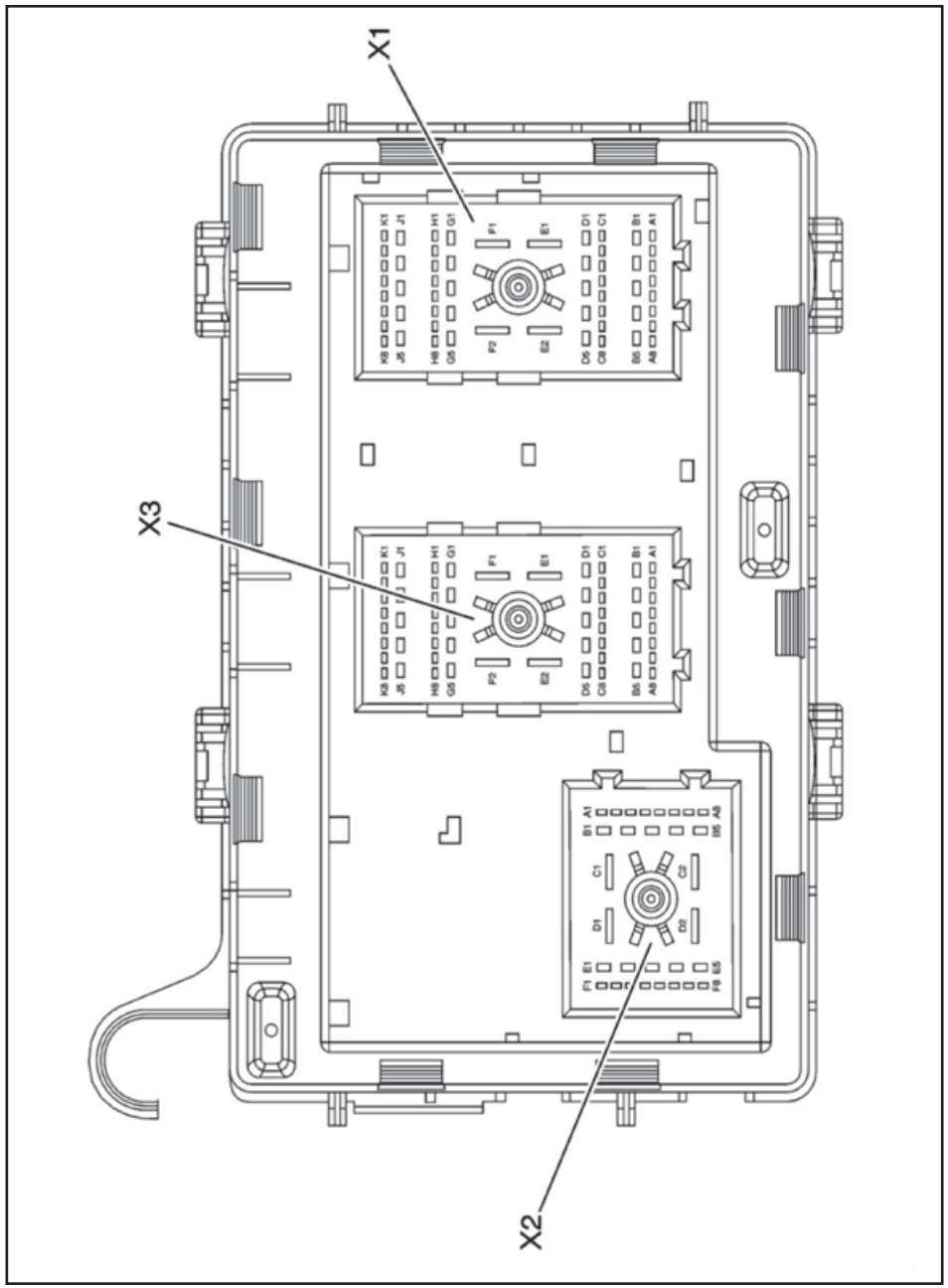
## Fuse Block – Underhood – Label Usage (cont'd)

| No. | Device | Rating | Description |
|---|---|---|---|
| 76 | SPARE Fuse | 10A | Not Used |
| 77 | O2 SNSR 1 (PRE)/CLS Fuse | 10A | HO2S Bank 1 Sensor 1 (LU3, L20, LMF or L96) and HO2S Bank 2 Sensor 1 (LU3, L20, LMF or L96) |
| 78 | ECM PWR/ TRN Fuse | 10A | Engine Control Module (ECM) |
| 79 | EVEN IGN/INJ Fuse | 20A | Even Fuel Injector (L20, LMF or L96) and Even Ignition Coils (L20, LMF or L96) |
| **Note: Relays listed below are non-serviceable Printed Circuit Board (PCB) relays and are internal to the block.** | | | |
| K3 | WPR HI PCB Relay | -- | Windshield Wiper Motor |
| K5 | HORN/WASH PCB Relay | -- | HORN and WASH Fuses |
| K6 | LO BEAM PCB Relay | -- | LT LO BEAM and RT LO BEAM Fuses |
| K7 | HI BEAM PCB Relay | -- | LT HI BEAM and RT HI BEAM Fuses |
| K9 | TRLR LT STOP/TRN PCB Relay | -- | LT STOP/TRN TRLR Fuse (UY7) |
| K11 | STOP LAMP(S) PCB Relay | -- | AUX STOP LAMP(S) Fuse |
| K13 | WPR PCB Relay | -- | Windshield Wiper Motor and WPR HI PCB Relay |
| K18 | TRLR RT STOP/TRN PCB Relay | -- | RT STOP/TRN TRLR Fuse (UY7) |
| K19 | DRL PCB Relay | -- | DRL 1 (LOLVL-V22) and DRL2 (LOLVL-V22) Fuses |

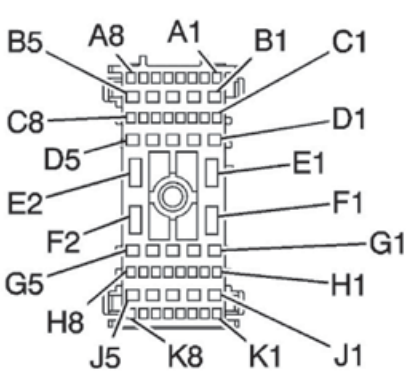
## Fuse Block - Underhood Top View

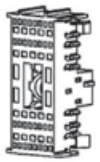



## Fuse Block - Underhood Bottom View



# Fuse Block - Underhood X1



**Connector Part Information**

Harness: Engine

OEM: 15477823

Service: 13574911

Description: 56-Way F GT 150 280 Metri-Pack Series, (L-GY)

**Terminal Part Information**

Pins: A1 (Gas), A2, C2, C6, C8, H1, H2, K2, K8
Terminal/Tray: 12191812/19
Core/Insulation Crimp: E/C
Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: A1 (Diesel), C7, K1, K4
Terminal/Tray: 12191812/19
Core/Insulation Crimp: C/A
Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: B4, D2, G1, G2, G3, G4 (Gas), J1, J2, J3
Terminal/Tray: 15304711/8
Core/Insulation Crimp: 2/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: B2, B5, D3, G4 (Diesel), G5, J4
Terminal/Tray: 15304711/8
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: E1, F1, F2
Terminal/Tray: 12110127/19
Core/Insulation Crimp: F/G
Release Tool/Test Probe: 12150860/J-35616-44 (YE)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.5 RD/WH | 440 | Battery Positive Voltage (LU3, L20, LMF or L96) |
| | 1 RD/WH | 440 | Battery Positive Voltage (LMM or LGH) |
| A2 | 0.35 RD/WH | 1840 | Battery Positive Voltage |
| A3-A8 | -- | -- | Not Used |
| B1 | -- | -- | Not Used |
| B2 | 0.5 D-GN | 59 | A/C Compressor Clutch Supply Voltage (C60) |
| B3 | -- | -- | Not Used |
| B4 | 0.8 D-GN | 29 | Horn Control |
| B5 | 0.5 PK | 439 | Ignition Voltage |
| | 0.5 PK | 439 | Ignition Voltage (LMM) |
| C1 | -- | -- | Not Used |
| C2 | 0.35 D-GN/WH | 459 | A/C Compressor Clutch Relay Control (Gas with C60) |
| | 0.5 D-GN/WH | 459 | A/C Compressor Clutch Relay Control (Diesel with C60) |
| C3-C5 | -- | -- | Not Used |
| C6 | 0.35 YE/BK | 625 | Starter Enable Relay Control (LU3, L20, LMF or L96) |
| | 0.5 YE/BK | 625 | Starter Enable Relay Control (LMM or LGH) |
| C7 | 1 BK | 1250 | Ground |
| C8 | 0.35 D-GN/WH | 465 | Fuel Pump Relay Control - Primary (L20, LMF or L96) |
| | 0.5 D-GN/WH | 465 | Fuel Pump Relay Control - Primary (LMM or LGH) |
| D1 | -- | -- | Not Used |
| D2 | 0.8 PK | 3039 | Ignition Voltage |
| D3 | 0.5 PK | 2139 | Ignition Voltage |
| D4-D5 | -- | -- | Not Used |



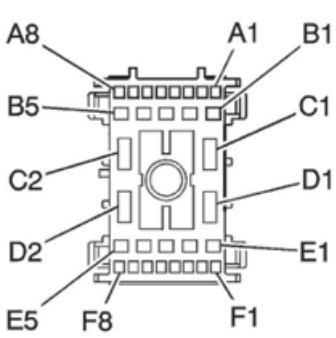
*(continued on next page)*

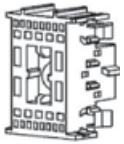
## Fuse Block – Underhood – X1 (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| E1 | 5 PU | 6 | Starter Solenoid Crank Voltage |
| E2 | -- | -- | Not Used |
| F1 | 5 PK | 1439 | Ignition Voltage (LMM or LGH) |
| F2 | 5 RD/BK | 542 | Battery Positive Voltage |
| G1 | 1 PK | 1039 | Ignition Voltage (L20, LMF or L96) |
| | 0.8 PK | 1039 | Ignition Voltage (LU3) |
| G2 | 0.8 PK | 1039 | Ignition Voltage (L20, LMF or L96) |
| | 0.8 PK | 1039 | Ignition Voltage (L20, LMF or L96) |
| G3 | 0.8 PK | 1039 | Ignition Voltage (L20, LMF or L96) |
| | 0.8 PK | 1039 | Ignition Voltage (L20, LMF or L96) |
| G4 | 0.5 PK | 1939 | Ignition Voltage |
| G5 | 0.5 PK | 1939 | Ignition Voltage (LU3, L20, LMF or L96) |
| H1 | 0.5 WH/BK | 2366 | Cooling Fan Clutch Control (LMM or LGH) |
| H2 | 0.5 PK | 1339 | Ignition Voltage |
| H3-H8 | -- | -- | Not Used |
| J1 | 1 PK | 1239 | Ignition Voltage (L20, LMF or L96) |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| J2 | 0.8 PK | 1239 | Ignition Voltage (L20, LMF or L96) |
| | 0.8 PK | 1239 | Ignition Voltage (L20, LMF or L96) |
| J3 | 0.8 PK | 1239 | Ignition Voltage (L20, LMF or L96) |
| | 0.8 PK | 1239 | Ignition Voltage (L20, LMF or L96) |
| J4 | 0.5 PK | 1839 | Ignition Voltage (LU3) |
| J5 | -- | -- | Not Used |
| K1 | 0.8 PK | 539 | Ignition Voltage (LU3, L20, LMF or L96) |
| | 0.8 PK | 539 | Ignition Voltage (L20, LMF or L96) |
| K2 | 0.5 WH | 2368 | Cooling Fan Clutch Control (LMM or LGH) |
| K3 | 0.5 PK | 439 | Ignition Voltage (LMM or LGH) |
| K4 | 0.8 PK | 1539 | Ignition Voltage (LU3, L20, LMF or L96) |
| | 0.8 PK | 1539 | Ignition Voltage (L20, LMF or L96) |
| K5-K7 | -- | -- | Not Used |
| K8 | 0.5 YE | 5991 | Powertrain Relay Control |

# Fuse Block - Underhood X2



**Connector Part Information**

Harness: Chassis

OEM: 13567518

Service: 19179282

Description: 30-Way F GT 280 M/P Series (BK)

**Terminal Part Information**

Pins: C2, D1, D2
Terminal/Tray: 12110127/19
Core/Insulation Crimp: F/G
Release Tool/Test Probe: 12150860/J-35616-44 (YE)

Pins: B1 (Diesel), B2, B5, E2, E4
Terminal/Tray: 13525970/4
Core/Insulation Crimp: 2/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins:A2-A4, A7, F1-F3
Terminal/Tray: 15496302/5
Core/Insulation Crimp: Pin: F2 - E/A
Core/Insulation Crimp: Pins: A2-A4, A7, F1, F3 - 2/A
Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: B1 (Gas), B4, E3
Terminal/Tray: 13525969/4
Core/Insulation Crimp: 4/4
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | -- | -- | Not Used |
| A2 | 1 YE | 618 | Left Rear Turn Signal Lamp Control (Cutaway) |
| A3 | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (Cutaway) |
| A4 | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control (Cutaway) |
| A5-A6 | -- | -- | Not Used |
| A7 | 1 BN | 2109 | Trailer Park Lamps Control (UY7) |
| A8 | 0.5 PK | 2739 | Ignition Voltage (LMF) |
| B1 | 0.8 GY | 120 | Fuel Pump Control (LMM or LGH) |
| | 2 GY | 120 | Fuel Pump Control (LU3, L20 or L96) |
| B2 | 0.8 PK | 2239 | Ignition Voltage (LMM or LGH) |
| B3 | -- | -- | Not Used |
| B4 | 2 RD/WH | 1740 | Battery Positive Voltage (Diesel with K08) |
| B5 | 1 D-GN | 1619 | Trailer Right Rear Turn/Stop Lamp Control (UY7) |
| C1 | -- | -- | Not Used |
| C2 | 3 RD/WH | 1640 | Battery Positive Voltage |
| D1 | 3 RD/BK | 742 | Battery Positive Voltage (UY7) |
| D2 | 5 RD/BK | 442 | Battery Positive Voltage |
| E1 | -- | -- | Not Used |
| E2 | 1 YE | 1618 | Trailer Left Rear Turn/Stop Lamp Control (UY7) |
| E3 | 3 D-BU | 47 | Trailer Auxiliary Control (UY7) |
| E4 | 1 L-BU | 1320 | CHMSL Control/Stop Lamp Control (Cutaway) |
| E5 | 2 RD/WH | 1940 | Battery Positive Voltage (LMF) |
| F1 | 1 L-GN | 1624 | Trailer Backup Lamps Control (Cutaway, 8S3 or UY7) |
| F2 | 0.5 RD/WH | 40 | Battery Positive Voltage (LU3, L20, LMF or L96) |
| F3 | 1 BN | 2109 | Trailer Park Lamps Control (Cutaway) |
| F4-F8 | -- | -- | Not Used |

## Fuse Block - Underhood X3

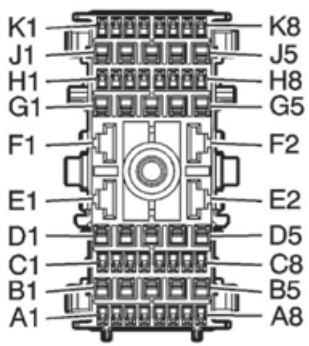
**Connector Part Information**

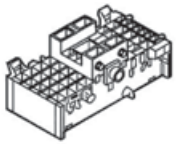
Harness: Instrument Panel

OEM: 15477822

Service: 19115189

Description: 56-Way F GT 150 280 Metri-Pack 800 Series (BK)



**Terminal Part Information**

Pins: A1-A5, A7, C1-C2, C4-C8, H2-H8, K3, K7-K8

Terminal/Tray: 12191812/19

Core/Insulation Crimp :Pins: A1, A2, A5, C1, C2, C4, H2, H4, H5, H6, H7, H8, K8 - E/C

Core/Insulation Crimp: Pins: A3, A4, A7, C5, C6, C7, C8, H3, K3, K7 - C/A

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: B2-B5, D1-D3, G1-G3, J1-J4

Terminal/Tray: 15304711/8

Core/Insulation Crimp: Pins: B2, B3, D1, D2, G2, G3 - E/A

Core/Insulation Crimp: Pins: B4, B5, D3, G1, J1, J2, J3, J4 - 2/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: B1, D4, G4, G5

Terminal/Tray: 15304713/19

Core/Insulation Crimp: F/D

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 PK | 1639 | Ignition Voltage |
| A2 | 0.35 RD/WH | 2840 | Battery Positive Voltage (8S8) |
| A3 | 0.8 RD/WH | 2240 | Battery Positive Voltage |
| A4 | 0.8 RD/WH | 3040 | Battery Positive Voltage |
| A5 | 0.5 RD/WH | 2540 | Battery Positive Voltage |
| A6 | -- | -- | Not Used |
| A7 | 0.8 RD/WH | 2740 | Battery Positive Voltage |
| A8 | -- | -- | Not Used |
| B1 | 3 RD/WH | 3940 | Battery Positive Voltage (UY7) |
| B2 | 0.35 PK | 1139 | Ignition Voltage |
| B3 | 0.35 PK | 1139 | Ignition Voltage |
| B4 | 0.8 RD/WH | 1040 | Battery Positive Voltage |
| B5 | 1 BN | 2109 | Trailer Park Lamps Control (UY7) |
| C1 | 0.35 PK | 239 | Ignition Voltage |
| C2 | 0.5 PK | 2239 | Ignition Voltage (JL4) |
| C3 | -- | -- | Not Used |
| C4 | 0.35 OG | 5186 | Left Trailer Turn Signal Lamp (UY7) |
| C5 | 1 BN | 2109 | Trailer Park Lamps Control (Cut-away) |
| C6 | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control (Cutaway) |
| C7 | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (Cutaway) |
| C8 | 1 YE | 618 | Left Rear Turn Signal Lamp Control (Cutaway) |
| D1 | 0.5 OG | 228 | Windshield Washer Pump Control |
| D2 | 0.35 YE | 5199 | Run/Crank Relay Coil Control |
| D3 | 1 L-GN | 1624 | Trailer Backup Lamps Control (Cutaway, UF7 or 8S8) |
| D4 | 3 D-BU | 47 | Trailer Auxiliary Control (UY7) |
| D5 | -- | -- | Not Used |
| E1-E2 | -- | -- | Not Used |
| F1-F2 | -- | -- | Not Used |
| G1 | 0.8 RD/WH | 640 | Battery Positive Voltage |
| G2 | 0.35 OG | 2268 | Windshield Washer Relay Control |
| G3 | 0.35 YE | 5187 | Right Trailer Turn Signal Lamp (UY7) |
| G4 | 2 PU | 92 | Windshield Wiper Motor High Speed |
| G5 | 2 D-GN | 95 | Windshield Washer Switch Signal |



*(continued on next page)*

## Fuse Block - Underhood X3 (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| H1 | -- | -- | Not Used |
| H2 | 0.5 RD/WH | 3840 | Battery Positive Voltage (except LU3 or LMF) |
| | 1 RD/WH | 3840 | Battery Positive Voltage (LU3 or LMF) |
| H3 | 0.35 TN | 28 | Horn Relay Control |
| | 0.35 TN | 28 | Horn Relay Control |
| H4 | 0.35 PK/WH | 1970 | Headlamp Low Beam Relay Control |
| H5 | 0.35 PU | 544 | Headlamp Low Beam Control |
| H6 | 0.35 GY | 91 | Windshield Wiper Switch Signal 2 |
| H7 | 0.5 WH | 5065 | Stop Lamps Control |
| H8 | 0.35 TN | 860 | Front Windshield Wiper Switch High Signal |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| J1 | 0.8 RD/WH | 640 | Battery Positive Voltage |
| J2 | 0.8 RD/WH | 2940 | Battery Positive Voltage |
| J3 | 0.8 BN | 2309 | Front Park Lamps Control |
| J4 | 0.8 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control |
| J5 | -- | -- | Not Used |
| K1-K2 | -- | -- | Not Used |
| K3 | 0.8 RD/WH | 2140 | Battery Positive Voltage |
| K4-K6 | -- | -- | Not Used |
| K7 | 0.8 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control |
| K8 | 0.35 TN/WH | 1969 | Headlamp High Beam Relay Control |

## Fuse Block - Underhood X4

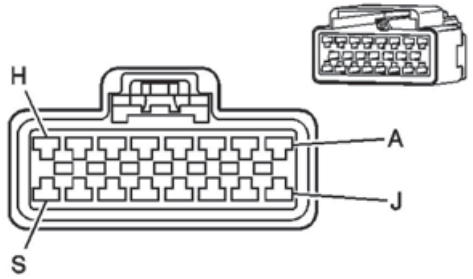
**Connector Part Information**

Harness: Forward Lamp

OEM: 15326952

Service: 15306426

Description: 16-Way F
GT 280 Series (BK)




**Terminal Part Information**

Pins: B, C, D, E, F, K, L, M, N, P

Terminal/Tray: 15304711/8

Core/Insulation Crimp: Pins B, C, F, K, L, N, P- E/A

Core/Insulation Crimp: Pins D, E, M - 2/A

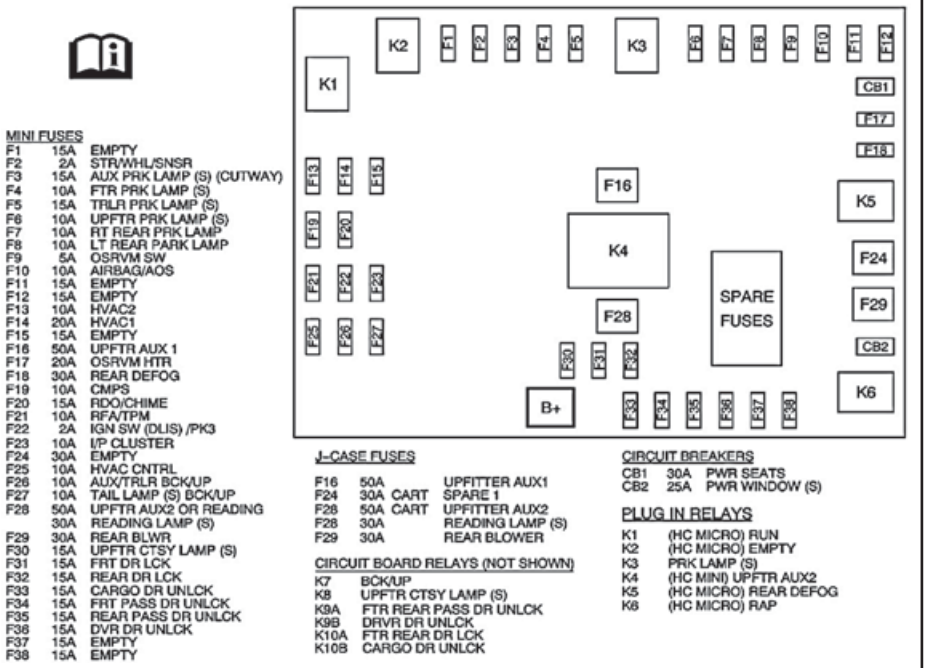
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | -- | -- | Not Used |
| B | 0.5 BN | 2309 | Front Park Lamps Control |
| C | 0.5 BN | 2309 | Front Park Lamps Control |
| D | 0.8 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control |
| E | 0.8 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control |
| F | 0.5 YE | 712 | Left Headlamp Low Beam Control (V22) |
| | 0.5 YE | 712 | Left Headlamp Low Beam Control (V22) |
| | 0.35 YE | 712 | Left Headlamp Low Beam Control (except V22) |
| | 0.35 YE | 712 | Left Headlamp Low Beam Control (except V22) |
| G | -- | -- | Not Used |
| H | -- | -- | Not Used |
| J | -- | -- | Not Used |
| K | 0.5 YE | 712 | Left Headlamp Low Beam Control (V22 without T79) |
| L | 0.35 YE | 712 | Left Headlamp Low Beam Control (except V22 without T79) |
| M | 0.8 L-GN/BK | 311 | Right Headlamp High Beam Control |
| N | 0.5 D-GN/WH | 711 | Left Headlamp High Beam Control |
| P | 0.35 TN/WH | 312 | Right Headlamp Low Beam Control (except V22) |
| | 0.5 TN/WH | 312 | Right Headlamp Low Beam Control (V22) |
| R | -- | -- | Not Used |
| S | -- | -- | Not Used |

## Fuse Block - Underhood X5

| Terminal Part Information | | | |
|---|---|---|---|
| Harness: Battery Positive (Gas) | | | |
| Harness: Auxiliary Battery Positive (Diesel) | | | |
| Terminal: 15441775 | | | |
| Core/Insulation Crimp: N/A | | | |
| Description: Ring Terminal | | | |
| **Pin** | **Wire** | **Circuit** | **Function** |
| S | 19 RD | 1 | Battery Positive Voltage |

## Fuse Block - Body Label




| No. | Device | Rating | Description |
|---|---|---|---|
| F1 | EMPTY | -- | Not Used |
| F2 | STR/WHL/ SNSR Fuse | 2A | Inflatable Restraint Steering Wheel Module Coil (K34 or W1Y) |
| F3 | AUX PRK LAMP(S) Fuse | 15A | X405 (Cutaway) |
| F4 | FRT PRK LAMP(S) Fuse | 10A | Inflatable Restraint I/P Module Disable Switch (C99), Marker Lamp - Left Front, Marker Lamp - Right Front, Park/Turn Signal Lamp - Left and Park/Turn Signal Lamp - Right |
| F5 | TRLR PRK LAMP(S) Fuse | 15A | Trailer Connector (UY7) |
| F6 | UPFTR PRK LAMP(S) Fuse | 10A | X320 (YF2 or YF7) |
| F7 | RT REAR PRK LAMP Fuse | 10A | Tail/Stop and Turn Signal Lamp - Right (Passenger or Cargo) |
| F8 | LT REAR PARK LAMP Fuse | 10A | License Lamp (Passenger or Cargo) and Tail/Stop and Turn Signal Lamp - Left (Passenger or Cargo) |
| F9 | OSRVM SW Fuse | 5A | Outside Rearview Mirror Switch (DE5 or DE7) |
| F10 | AIRBAG/AOS Fuse | 10A | Inflatable Restraint Front Passenger Presence System (PPS) Sensor (Light Duty without YF7), Inflatable Restraint Sensing and Diagnostic Module(SDM) and Inflatable Restraint Vehicle Rollover Sensor (ASF) |
| F11 | EMPTY | -- | Not Used |
| F12 | EMPTY | -- | Not Used |
| F13 | HVAC2 Fuse | 10A | Air Temperature Actuator, Air Temperature Actuator - Auxiliary (C69), HVAC Control Assembly (C49, DE5 or DE7), HVAC Control Assembly-Rear Auxiliary (C69 with Rear Auxiliary Controls), HVAC Control Module - Auxiliary, Blower Motor High Speed Relay - Auxiliary (C36 without C69), Blower Motor Low Speed Relay - Auxiliary (C36 without C69), Blower Motor Medium Speed Relay - Auxiliary (C36 without C69) and Mode Actuator - Auxiliary (C69) |
| F14 | HVAC1 Fuse | 20A | HVAC Control Assembly and Vacuum Pump (LMM or LGH) |
| F15 | EMPTY | -- | Not Used |
| F16 | UPFITTER AUX1 Fuse | 50A | Blunt Cut (YF1), X222 (YF2 or YF7) and X321 (YF2 or YF7) |
| F17 | OSRVW HTR Fuse | 20A | Outside Rearview Mirror - Driver (DE5 or DE7) and Outside Rearview Mirror - Passenger (DE5 or DE7) |
| F18 | REAR DEFOG Fuse | 30A | Rear Window Defogger Grid - Left (C49) and Rear Window Defogger Grid - Right (C49) |
| F19 | CMPS Fuse | 10A | Electronic Compass Module (U80) |
| F20 | RDO/CHIME Fuse | 15A | Chime Module (UL5) and Radio |



*(continued on next page)*

## Fuse Block - Body Label (cont'd)

| No. | Device | Rating | Description |
|---|---|---|---|
| F21 | RFA/TPM Fuse | 10A | Remote Control Door Lock Receiver (RCDLR) (AU0 or UJ6) |
| F22 | IGN SW (DLIS)/PK3 Fuse | 2A | Ignition Switch and Theft Deterrent Module (TDM) |
| F23 | I/P CLUSTER Fuse | 10A | Instrument Panel Cluster (IPC) (except 8S8) |
| F24 | SPARE-1 Fuse | 30A | Not Used |
| F25 | HVAC CNTRL Fuse | 10A | HVAC Control Assembly (C49, DE5 or DE7) |
| F26 | AUX/TRLR BCK/UP Fuse | 10A | Backup Alarm (8S3), Trailer Connector (UY7) and X405 (Cutaway) |
| F27 | TAIL LAMP(S) BCK/UP Fuse | 10A | Backup Lamp - Left (Passenger or Cargo) and Backup Lamp - Right (Passenger or Cargo) |
| F28 | UPFITTER AUX2 Fuse | 50A | Blunt Cut (YF1), X321 (YF2 or YF7) and X222 (YF2 or YF7) |
|  | READING LAMP(S) Fuse | 30A | Blunt Cut - Provisional Wiring (5B3) |
| F29 | REAR BLWR Fuse | 30A | Blower Motor High Speed Relay - Auxiliary (C36 without C69), Blower Motor Low Speed Relay - Auxiliary (C36 without C69) and Blower Motor Medium Speed Relay - Auxiliary (C36 without C69) |
| F30 | UPFTR CTSY LAMP(S) Fuse | 15A | Body Control Module (except YF7), X405 (Cutaway), Dome/Reading Lamp - Middle (Passenger), Dome Lamp (Cargo), Dome/Reading Lamp - Rear (Passenger), X320 (YF7) and Dome/Reading Lamp Front |
| F31 | FRT DR LCK Fuse | 15A | Door Latch - Driver (AU3) and Door Latch - Passenger (AU3) |
| F32 | REAR DR LCK Fuse | 15A | Door Latch - Cargo (Passenger or Cargo), Door Contact Plate - Left Side (E26) and Door Contact Plate - Right Side (E24 or YA2) |

| No. | Device | Rating | Description |
|---|---|---|---|
| F33 | CARGO DR UNLCK Fuse | 15A | Door Latch - Cargo (Passenger or Cargo with AU3) |
| F34 | FRT PASS DR UNLCK Fuse | 15A | Door Latch - Passenger (AU3) |
| F35 | REAR PASS DR UNLCK Fuse | 15A | Door Contact Plate - Left (E26 with AU3), Door Contact Plate - Right (Passenger or Cargo with AU3) and Fuse Block - Body |
| F36 | DVR DR UN-LCK Fuse | 15A | Door Latch - Driver (AU3) |
| F37 | EMPTY | -- | Not Used |
| F38 | EMPTY | -- | Not Used |
| CB1 | PWR SEATS Circuit Breaker | 30A | Seat Adjuster Switch - Driver (AG1) and Seat Adjuster Switch - Passenger (AG2) |
| CB2 | PWR WINDOW(S) Circuit Breaker | 25A | Window Switch - Driver (A31) and Window Switch - Passenger (A31) |
| K1 | RUN Relay | -- | CMPS, HVAC1 and HVAC2 Fuses and UPFTR AUX2 Relay |
| K2 | EMPTY | -- | Not Used |
| K3 | PRK LAMP(S) Relay | -- | AUX PRK LAMP(S) (Cutaway), FRT PRK LAMP(S), LT REAR PARK LAMP, RT REAR PRK LAMP, TRLR PRK LAMP(S) and UPFTR PRK LAMP(S) Fuses |
| K4 | UPFTR AUX2 Relay | -- | READING LAMP(S) (5B3) or UPFITTER AUX2 (YF1, YF2 or YF7) Fuses |
| K5 | REAR DEFOG Relay | -- | OSRVM HTR and REAR DEFOG Fuses |
| K6 | RAP Relay | -- | PWR WINDOW(S) Circuit Breaker (A31) |
| **Note: Relays listed below are non-serviceable Printed Circuit Board (PCB) relays and are internal to the block.** | | | |
| K7 | BCK/UP PCB Relay | -- | AUX/TRLR BCK/UP and TAIL LAMP(S) BCK/UP Fuses |
| K8 | UPFTR CTSY LAMP(S) PCB Relay | -- | UPFTR CTSY LAMP(S) Fuse |

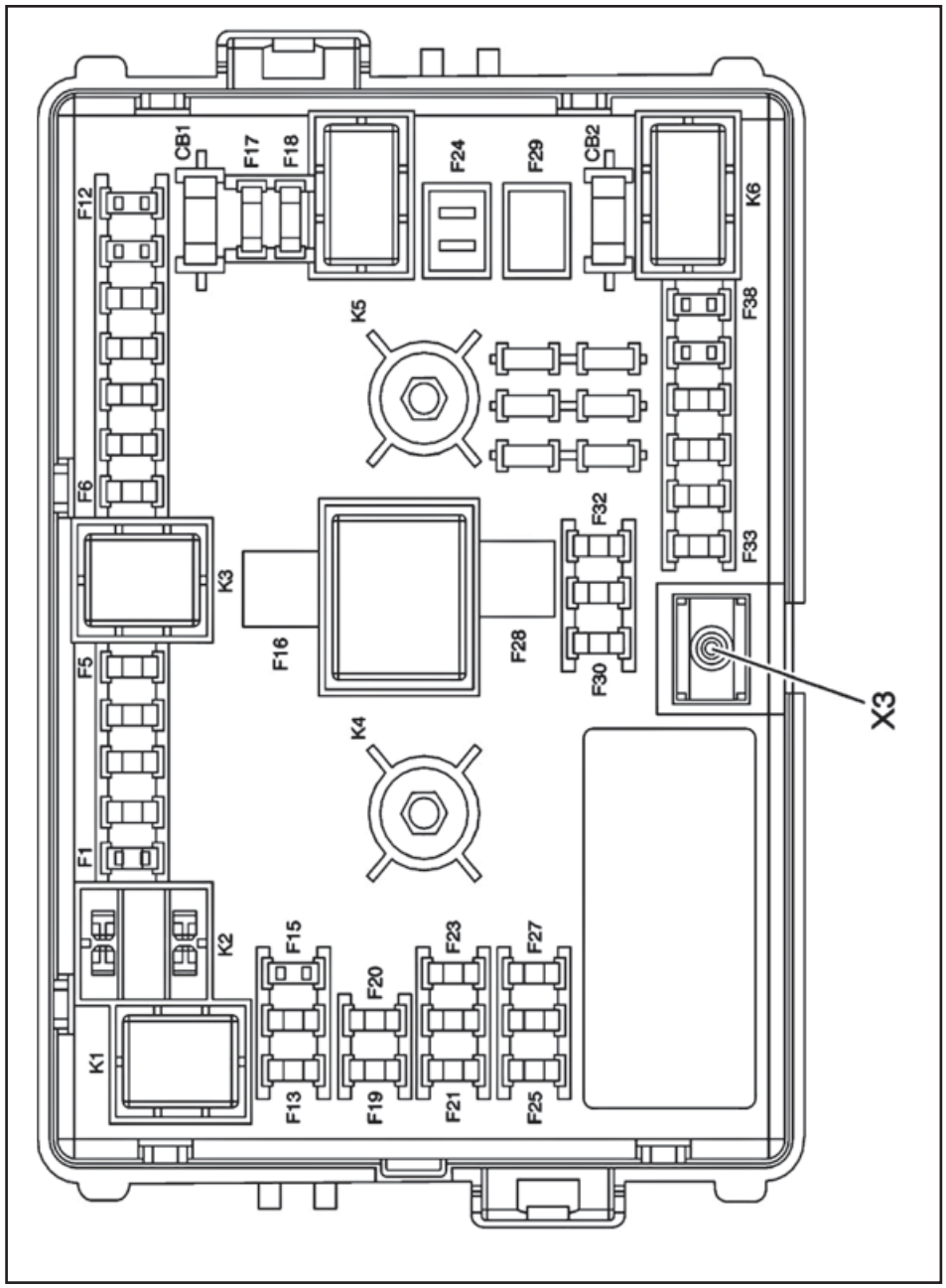


*(continued on next page)*

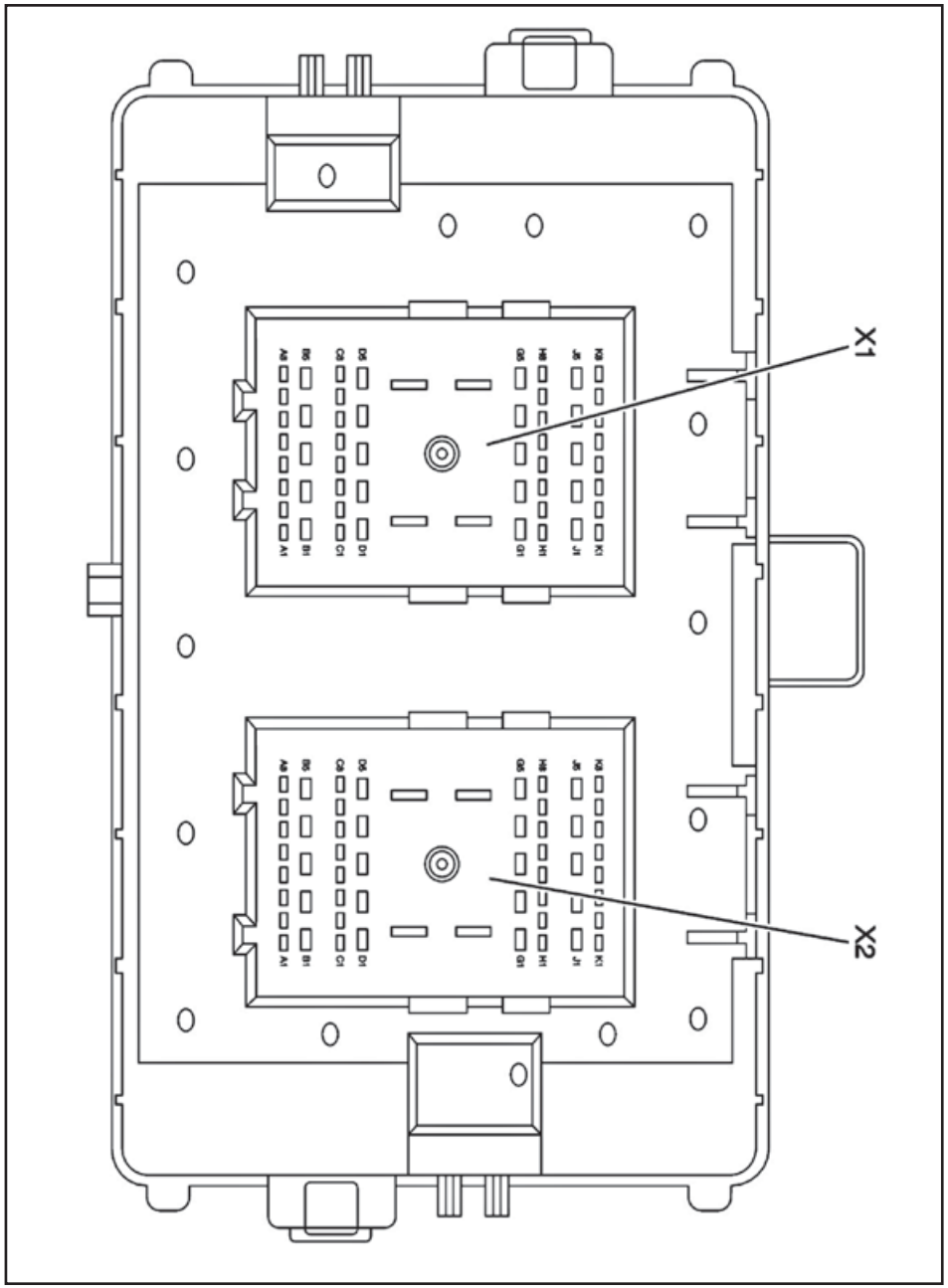
## Fuse Block - Body Label (cont'd)

| No. | Device | Rating | Description |
|---|---|---|---|
| K9A | FTR REAR PASS DR UNLCK PCB Relay | -- | FRT PASS DR UNLCK and REAR PASS DR UNLCK Fuses |
| K9B | DRVR DR UNLCK PCB Relay | -- | DVR DR UNLCK Fuse |
| K10A | FTR REAR DR LCK PCB Relay | -- | FRT DR LCK and REAR DR LCK Fuses |
| K10B | CARGO DR UNLCK PCB Relay | -- | CARGO DR UNLCK Fuse |

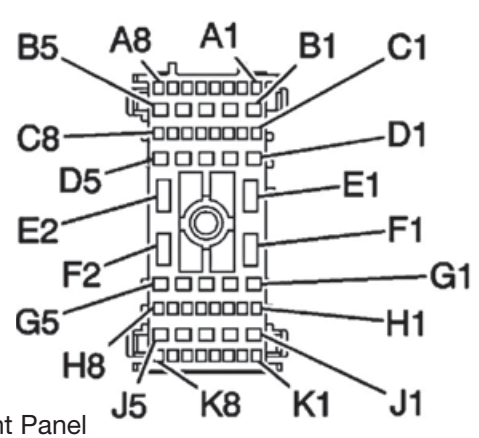
## Fuse Block - Body Top View

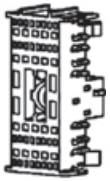



## Fuse Block - Body Bottom View



## Fuse Block - Body X1



**Connector Part Information**

Harness: Instrument Panel

OEM: 15477823

Service: 13574911

Description: 56-Way F GT 150 280 Metri-Pack Series, (L-GY)

**Terminal Part Information**

Pins: E1, F1
Terminal/Tray: 7116-4122-02/10
Core/Insulation Crimp: D/G
Release Tool/Test Probe: 12094430/J-35616-42 (RD)

Pins: A4-A6, B3, C2, C4, C5, C7, E2, K2-K5, K8, H3, H4, H6-H8
Terminal/Tray: 8100-4443/22
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Pins: B2, B5, C1, C3, C8, D5, G3, G4, H1, H2, J5
Terminal/Tray: 8100-4444/22
Core/Insulation Crimp: 2/A
Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Pins: B4, K5
Terminal/Tray: 8100-4445/22
Core/Insulation Crimp: See Terminal Repair Kit
Release Tool/Test Probe: 15315247/J-35616-35 (VT)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1-A3 | -- | -- | Not Used |
| A4 | 0.35 YE | 6817 | LED Backlight Dimming Control (K34 or W1Y) |
| A5 | 0.35 D-BU | 45 | Park Lamp Control |
| A6 | 0.35 BN | 6136 | Supply Voltage (K34 or W1Y) |
| A7-A8 | -- | -- | Not Used |
| B1 | -- | -- | Not Used |
| B2 | 1 BN | 2109 | Trailer Park Lamps Control (UY7) |
| B3 | 0.35 BN | 341 | Ignition Voltage |
| B4 | 0.5 BN | 2309 | Front Park Lamps Control |
| | 0.8 BN | 2309 | Front Park Lamps Control (C99) |
| B5 | 1 BN | 2109 | Trailer Park Lamps Control (Cut-away) |
| C1 | 1 YE | 618 | Left Rear Turn Signal Lamp Control (Passenger or Cargo) |
| C2 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control |
| C3 | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control (Passenger or Cargo) |
| C4 | 0.35 WH | 193 | Rear Defog Relay Control (C49, DE5 or DE7) |
| C5 | 0.35 BN | 341 | Ignition Voltage |
| C6 | -- | -- | Not Used |
| C7 | 0.35 OG | 300 | Ignition Voltage |
| C8 | 0.8 BN | 141 | Ignition Voltage (LMM or LGH) |
| D1-D4 | -- | -- | Not Used |
| D5 | 1 BN | 141 | Ignition Voltage |
| E1 | 5 RD/BK | 1042 | Battery Positive Voltage (YF7) |
| E2 | 0.5 BK | 350 | Ground |
| F1 | 5 BN | 541 | Ignition Voltage (YF2 or YF7) |
| F2 | -- | -- | Not Used |



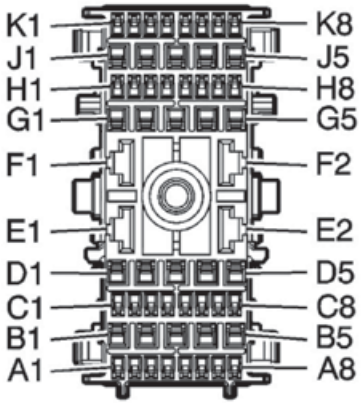
*(continued on next page)*

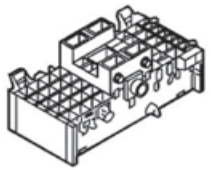
## Fuse Block - Body X1 (Cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| G1-G2 | -- | -- | Not Used |
| G3 | 0.8 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control (DE5 or DE7) |
| G4 | 1 RD/WH | 340 | Battery Positive Voltage |
| G5 | -- | -- | Not Used |
| H1 | 0.8 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control (DE5 or DE7) |
| H2 | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (Cutaway) |
| | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (except YF2 or YF7) |
| H3 | 0.35 BK/WH | 351 | Ground |
| H4 | 0.35 YE | 43 | Ignition Voltage |
| H5 | 0.8 RD/WH | 4440 | Battery Positive Voltage (C49, DE5 or DE7) |
| H6 | 0.35 RD/WH | 2840 | Battery Positive Voltage (except 8S8) |
| H7 | 0.35 RD/WH | 540 | Battery Positive Voltage |
| H8 | 0.5 RD/WH | 5340 | Battery Positive Voltage (AU0 or UJ6) |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| J1-J4 | -- | -- | Not Used |
| J5 | 1 L-GN | 1624 | Trailer Backup Lamps Control (Cutaway, UY7 or 8S3) |
| K1 | -- | -- | Not Used |
| K2 | 0.5 YE | 356 | Driver Door Lock Relay Unlock Control (AU3) |
| K3 | 0.5 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| K4 | 0.5 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| K5 | 0.5 YE | 356 | Driver Door Lock Relay Unlock Control (AU3) |
| | 0.5 YE | 356 | Driver Door Lock Relay Unlock Control (AU3 with PRP) |
| K6 | -- | -- | Not Used |
| K7 | 0.5 GY/BK | 690 | Courtesy Lamp Control (YF2 or YF7) |
| K8 | 0.35 D-BU | 38 | Backup Lamp Relay Control |

## Fuse Block - Body X2



**Connector Part Information**

Harness: Body

OEM: 15477822

Service: 19115189

Description: 56-Way F GT 150 280 Metri-Pack 800 Series (BK)

**Terminal Part Information**

Pins: D1, D2, E2, F1, F2
Terminal/Tray: 7116-4122-02/10
Core/Insulation Crimp: D/G
Release Tool/Test Probe: 12094430/J-35616-42 (RD)

Pins: A1-A6, B4, C3-C5, C8, H2, H3, H5-H7
Terminal/Tray: 8100-4443/22
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Pins: C6, C7, D3, D4, G4, G5, J1-J4, K7
Terminal/Tray: 8100-4444/22
Core/Insulation Crimp: 2/A
Release Tool/Test Probe: 15315247/J-35616-35 (VT)

Pins: B1, B2, G1, G2, H8, J3, J5, K8
Terminal/Tray: 8100-4445/22
Core/Insulation Crimp: Pins B1, B2, G1, G2 - F/D
Core/Insulation Crimp: Pins G5, H8, J3, J5, H8 - See Terminal Repair Kit
Release Tool/Test Probe: 15315247/J-35616-35 (VT)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.5 RD/WH | 3440 | Battery Positive Voltage (Light Duty except C99 or YF7) |
| A2 | 0.5 RD/WH | 3440 | Battery Positive Voltage (ASF) |
| A3 | 0.5 RD/WH | 3440 | Battery Positive Voltage |
| A4 | 0.5 BN | 2509 | Left Rear Park Lamps Control (Passenger or Cargo) |
| A5 | 0.5 BN | 2609 | Right Rear Park Lamps Control (Passenger or Cargo) |
| A6 | 0.5 RD/WH | 4340 | Battery Positive Voltage (DE5 or DE7) |
| A7-A8 | -- | -- | Not Used |
| B1 | 3 RD/WH | 3540 | Battery Positive Voltage (AG2) |
| B2 | 3 RD/WH | 3540 | Battery Positive Voltage (AG1) |
| B3 | -- | -- | Not Used |
| B4 | 0.5 BN | 2209 | Rear Park Lamps Control (YF2 or YF7) |
| B5 | -- | -- | Not Used |
| C1-C2 | -- | -- | Not Used |
| C3 | 0.35 BN | 341 | Ignition Voltage (C69) |
| C4 | 0.35 BN | 341 | Ignition Voltage (C69, C36 or ENC) |
| C5 | 0.35 BN | 341 | Ignition Voltage (C49, DE5, DE7 or C60) |
| C6 | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control (Passenger or Cargo) |
| C7 | 1 YE | 618 | Left Rear Turn Signal Lamp Control (Passenger or Cargo) |
| C8 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control |
| D1 | 5 PU | 293 | Rear Defog Element Control (C49) |
| D2 | 5 PU | 293 | Rear Defog Element Control (C49) |
| D3 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |



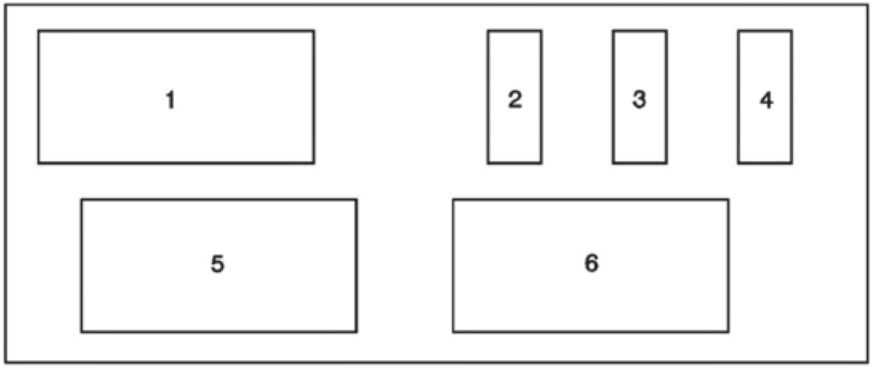
*(continued on next page)*

## Fuse Block – Body – X2 (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| D4 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| D5 | -- | -- | Not Used |
| E1 | -- | -- | Not Used |
| E2 | 5 RD/BK | 1042 | Battery Positive Voltage (YF1, YF2 or YF7) |
| F1 | 5 RD/WH | 1740 | Battery Positive Voltage (C69, C36 or ENC) |
| F2 | 5 BN | 541 | Ignition Voltage (YF1, YF2 or YF7) |
| G1 | 3 D-GN | 1001 | RAP 12-Volt Fuse Control (A31) |
| G2 | 3 D-GN | 1001 | RAP 12-Volt Fuse Control (A31) |
| G3 | -- | -- | Not Used |
| G4 | 1 GY | 295 | Door Lock Actuator Lock Control (Passenger or Cargo with AU3) |
| G5 | 1 GY | 295 | Door Lock Actuator Lock Control (AU3 with E26) |
| | 1 GY | 295 | Door Lock Actuator Lock Control (AU3 with E26 or YA2) |
| H1 | -- | -- | Not Used |
| H2 | 0.35 BN | 441 | Ignition Voltage |
| H3 | 0.35 BK/WH | 351 | Ground |
| H4 | -- | -- | Not Used |
| H5 | 0.5 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control (DE5 or DE7) |
| H6 | 0.5 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control (DE5 or DE7) |
| H7 | 0.5 D-BU/WH | 149 | Courtesy Lamp Control |
| H8 | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (Passenger) |
| | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (Passenger or Cargo except YF2 or YF7) |

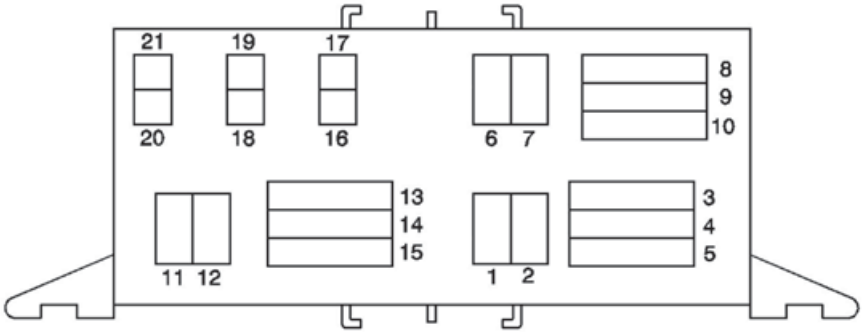
| Pin | Wire | Circuit | Function |
|---|---|---|---|
| J1 | 0.8 TN | 694 | Driver Door Lock Actuator Unlock Control (AU3) |
| J2 | 1 TN | 294 | Door Lock Actuator Unlock Control (Passenger or Cargo with AU3) |
| J3 | 0.8 TN | 294 | Door Lock Actuator Unlock Control (AU3 with E24 or YA2) |
| | 0.8 TN | 294 | Door Lock Actuator Unlock Control (AU3 with E26) |
| J4 | 0.8 TN | 294 | Door Lock Actuator Unlock Control (AU3) |
| J5 | 1 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| | 1 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| K1-K2 | -- | -- | Not Used |
| K3 | 1 TN/BK | 1095 | Right Rear Door Lock Actuator Unlock Control (Passenger or Cargo with AU3) |
| K4-K6 | -- | -- | Not Used |
| K7 | 1 TN | 294 | Door Lock Actuator Unlock Control (Passenger or Cargo with AU3) |
| K8 | 0.8 L-GN | 24 | Backup Lamp Control (Passenger or Cargo) |
| | 0.8 L-GN | 24 | Backup Lamp Control (Passenger or Cargo) |

## Fuse Block - Rear (PRP) - Top View




| No. | Device | Rating | Description |
|---|---|---|---|
| 1 | Access Panel Relay - Left Side Rear | -- | Access Panel Latches - Left Side Rear |
| 2 | Dome Fluorescent Work Lamps Fuse | 10 | Dome Fluorescent Work Lamps (UF2) |
| 3 | Panel Actuator Fuse | 15 | Access Panel Relays |
| 4 | -- | -- | Not Used |
| 5 | Access Panel Relay - Left Side Front | -- | Access Panel Latches - Left Side Front |
| 6 | Access Panel Relay - Right Side | -- | Access Panel Latches - Right Side |

# Fuse Block - Rear (PRP) - Bottom View




**Connector Part Information**

OEM: 63995

Service: See Catalog

Description: 21-Way F Fuse Block (BK)

**Terminal Part Information**

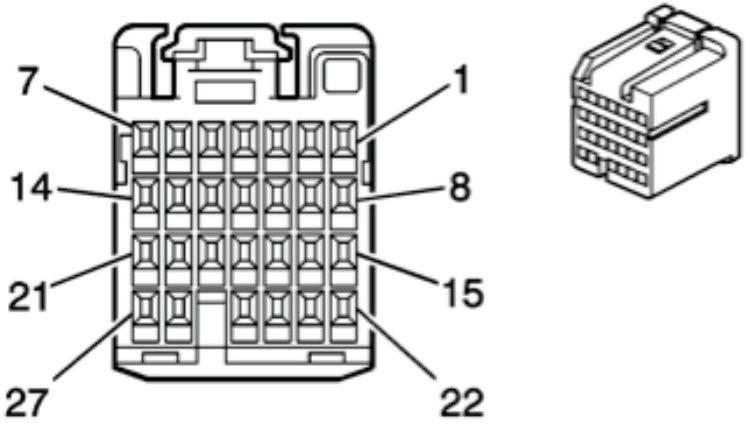
Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | OG | 740 | Battery Positive Voltage |
| 2 | TN | 294 | Access Panel Left Front Side Lock Actuators Unlock Control |
| 3 | L-BU | 195 | Access Panel Left Side Front Relay Control |
| 4 | -- | -- | Not Used |
| 5 | OG | 740 | Battery Positive Voltage |
| 6 | OG | 740 | Battery Positive Voltage |
| 7 | PK | 1092 | Access Panel Left Rear Side Lock Actuators Unlock Control |
| 8 | L-GN | 1391 | Access Panel Left Side Rear Relay Control |
| 9 | -- | -- | Not Used |
| 10 | OG | 740 | Battery Positive Voltage |
| 11 | OG | 740 | Battery Positive Voltage |
| 12 | TN/BK | 1095 | Access Panel Right Side Lock Actuators Unlock Control |
| 13 | L-BU | 1344 | Access Panel Right Side Relay Control |
| 14 | -- | -- | Not Used |
| 15 | OG | 740 | Battery Positive Voltage |
| 16 | RD | 1042 | Battery Positive Voltage (UF2) |
| 17 | OG | 840 | Battery Positive Voltage (UF2) |
| 18 | RD | 1042 | Battery Positive Voltage |
| 19 | OG | 740 | Battery Positive Voltage |
| 20-21 | -- | -- | Not Used |

# Body Control Module (BCM) X1

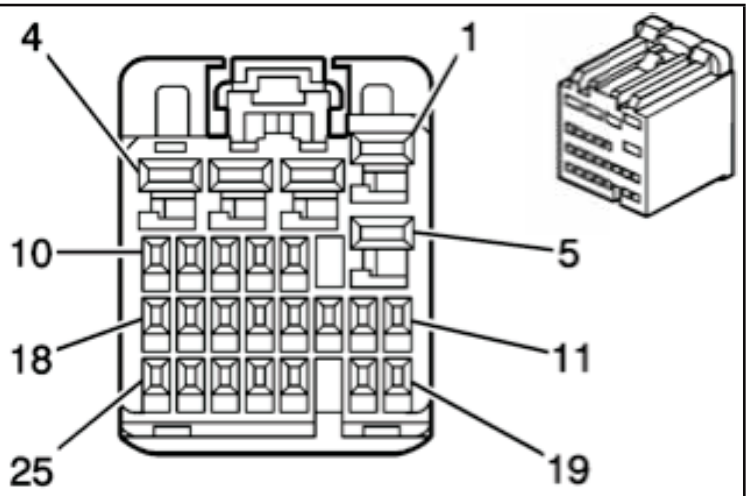



**Connector Part Information**
Harness: Instrument Panel
OEM: 15482789
Service: 88988838
Description: 27-Way F HIT Series (L-GN)

**Terminal Part Information**
Pins: 2-6, 8, 9, 14-21, 23-26
Terminal/Tray: SNAC3-A021T-M0.64/20
Core/Insulation Crimp: J/J
Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | -- | -- | Not Used |
| 2 | 0.35 PK | 1020 | Ignition Voltage |
| 3 | 0.35 GY | 1884 | Cruise Control Switch Signal |
| 4 | 0.35 WH | 530 | Ignition Voltage |
| 5 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| 6 | 0.35 L-GN | 6818 | Steering Wheel Control Signal |
| 7 | -- | -- | Not Used |
| 8 | 0.35 TN/BK | 6009 | Low Reference |
| 9 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| 10-13 | -- | -- | Not Used |
| 14 | 0.35 PK | 3 | Ignition Voltage |
| 15 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| 16 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |
| 17 | 0.35 PK | 1444 | 12-Volt Reference |
| 18 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| 19 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| 20 | 0.35 PU | 5526 | Tap Up/Tap Down Switch Signal |
| 21 | 0.35 BN | 4 | Ignition Voltage |
| 22 | -- | -- | Not Used |
| 23 | 0.35 L-BU | 1788 | Tow/Haul Switch Signal |
| 24 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| 25 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| 26 | 0.5 TN/WH | 816 | A/T Shift Lock Solenoid Control |
| 27 | -- | -- | Not Used |

# Body Control Module (BCM) X2




**Connector Part Information**

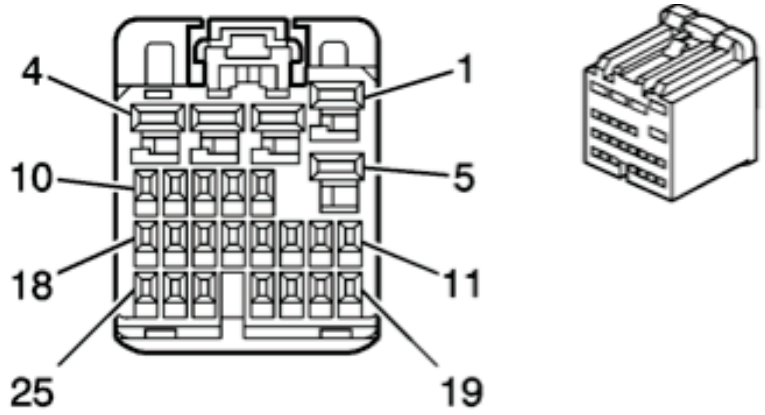
Harness: Instrument Panel
OEM: 15482790
Service: 88988839
Description: 25-Way F HIT Series (NA)

**Terminal Part Information**

Pins: 1, 2, 3, 5
Terminal/Tray: SNAC-A061T-M2.8/20
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 15315247/J-35616-4A (PU)
Pins: 8, 11, 12, 17, 18, 21, 22, 25
Terminal/Tray: SNAC3-A021T-M0.64/20
Core/Insulation Crimp: J/J
Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.8 OG | 1732 | Courtesy Lamp Control |
| 2 | 0.5 RD/WH | 2540 | Battery Positive Voltage |
| 3 | 0.5 BN/WH | 230 | Instrument Panel Lamps Dimming Control |
| 4 | -- | -- | Not Used |
| 5 | 0.5 GY/BK | 690 | Courtesy Lamp Control (YF7) |
| | 0.8 D-BU/WH | 149 | Courtesy Lamp Control (without YF7) |
| 6-7 | -- | -- | Not Used |
| 8 | 0.35 L-BU | 13 | Headlamp Switch Park Lamps Signal |
| 9-10 | -- | -- | Not Used |
| 11 | 0.35 WH | 278 | Ambient Light Sensor Signal |
| 12 | 0.35 WH | 103 | Headlamp Switch Headlamps On Signal |
| 13-16 | -- | -- | Not Used |
| 17 | 0.35 D-GN | 306 | Headlamp Switch Headlamps Off Signal |
| 18 | 0.35 D-BU/WH | 149 | Courtesy Lamp Control |
| 19-20 | -- | -- | Not Used |
| 21 | 0.5 D-BU | 6727 | Traction Control Preference Switch Signal (JL4) |
| 22 | 0.35 D-BU | 38 | Backup Lamp Relay Control |
| 23-24 | -- | -- | Not Used |
| 25 | 0.35 PU | 328 | Interior Lamp Defeat Switch Signal |

## Body Control Module (BCM) X3




**Connector Part Information**

Harness: Instrument Panel

OEM: 15482791

Service: 88988840

Description: 25-Way F HIT Series (L-BU)

**Terminal Part Information**

Pins: 1-3, 5

Terminal/Tray: SNAC-A061T-M2.8/20

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: 8-13, 16-19, 22

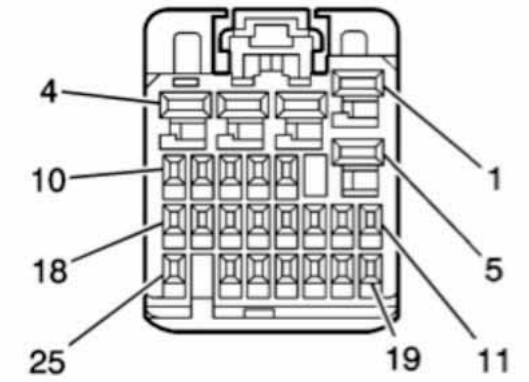
Terminal/Tray: SNAC3-A021T-M0.64/20

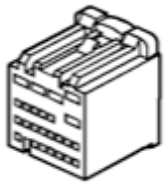
Core/Insulation Crimp: J/J

Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.8 BK/WH | 351 | Ground |
| 2 | 0.8 RD/WH | 2140 | Battery Positive Voltage |
| 3 | 0.5 RD/WH | 3840 | Battery Positive Voltage |
| 4 | -- | -- | Not Used |
| 5 | 0.8 BK/WH | 351 | Ground |
| 6-7 | -- | -- | Not Used |
| 8 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 9 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 10 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |
| 11 | 0.35 D-GN | 44 | Instrument Panel Lamps Dimmer Switch Signal |
| 12 | 0.35 OG/WH | 812 | IP Dimming Voltage Reference |
| 13 | 0.35 PU | 7062 | Brake Switch Signal |
| 14-15 | -- | -- | Not Used |
| 16 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 17 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 18 | 0.35 YE | 6817 | LED Backlight Dimming Control |
| 19 | 0.5 L-BU | 5986 | Serial Data Communication Enable |
| 20-21 | -- | -- | Not Used |
| 22 | 0.35 D-GN/ WH | 7158 | Cruise Control Indicator Dimming Signal |
| 23-25 | -- | -- | Not Used |

## Body Control Module (BCM) X4



**Connector Part Information**

Harness: Instrument Panel

OEM: 15482792

Service: 88988841

Description: 25-Way F HIT Series (BK)

**Terminal Part Information**

Pins: 6, 7, 11-13, 15-17, 19-21, 23, 24

Terminal/Tray: SNAC3-A021T-M0.64/20

Core/Insulation Crimp: J/J

Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

Pins: 1-5

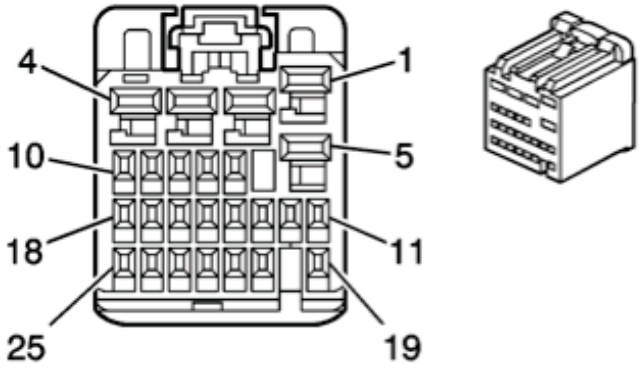
Terminal/Tray: SNAC-A061T-M2.8/20

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.8 RD/WH | 2740 | Battery Positive Voltage |
| 2 | 0.8 RD/WH | 3040 | Battery Positive Voltage |
| 3 | 0.8 RD/WH | 2940 | Battery Positive Voltage |
| 4 | 0.8 RD/WH | 2240 | Battery Positive Voltage |
| 5 | 0.8 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control |
| 6 | 0.35 D-GN | 6134 | Local Interconnect Network 3 |
| 7 | 0.35 YE | 196 | Windshield Wiper Motor Park Switch Signal |
| 8 | -- | -- | Not Used |
| 9 | 0.5 BK/WH | 451 | Ground (LU3 or LMF) |
| 10 | 0.5 RD/WH | 2840 | Battery Positive Voltage (LU3 or LMF) |
| 11 | 0.5 L-GN | 1391 | Ignition Voltage (PRP) |
| 12 | 0.35 YE | 5187 | Right Trailer Turn Signal Lamp (UY7) |
| 13 | 0.35 OG | 5186 | Left Trailer Turn Signal Lamp (UY7) |
| 14 | -- | -- | Not Used |
| 15 | 0.35 OG | 2268 | Windshield Washer Relay Control |
| 16 | 0.35 TN/WH | 1969 | Headlamp High Beam Relay Control |
| 17-18 | -- | -- | Not Used |
| 19 | 0.5 D-BU | 5985 | Accessory Wakeup Serial Data |
| 20 | 0.5 L-BU | 1344 | Trunk Release Control (PRP) |
| 21 | 0.35 YE | 5199 | Run/Crank Relay Coil Control |
| 22 | -- | -- | Not Used |
| 23 | 0.35 PU | 544 | Headlamp Low Beam Control |
| 24 | 0.5 L-BU | 244 | Front Passenger Door Lock Switch Lock Control (PRP) |
| 25 | -- | -- | Not Used |

## Body Control Module (BCM) X5




**Connector Part Information**

Harness: Instrument Panel

OEM: 15480179

Service: 88988837

Description: 25-Way F HIT Series (BN)

**Terminal Part Information**

Pins: 6, 11, 13, 15, 16, 18-21, 23, 24

Terminal/Tray: SNAC3-A021T-M0.64/20

Core/Insulation Crimp: J/J

Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

Pins: 1, 2, 4, 5

Terminal/Tray: SNAC-A061T-M2.8/20

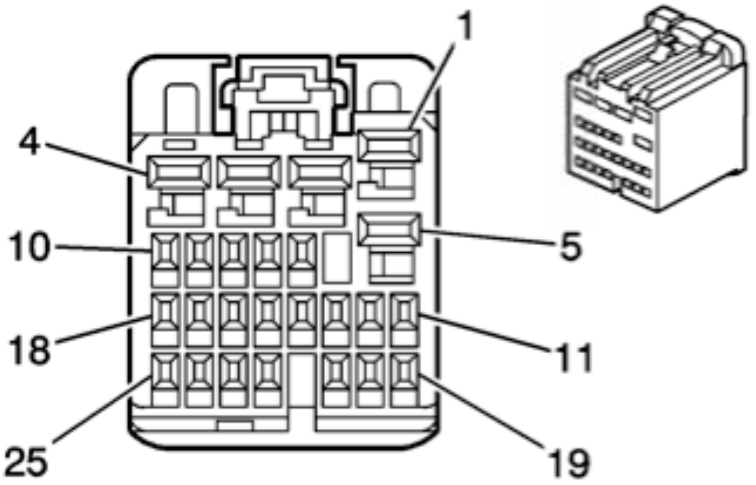
Core/Insulation Crimp: Pins 1, 2 - C/A

Core/Insulation Crimp: Pins 4, 5 - E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| 2 | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| 3 | -- | -- | Not Used |
| 4 | 0.8 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control |
| 5 | 0.5 WH | 5065 | Stop Lamps Control |
| 6 | 0.35 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| 7 | -- | -- | Not Used |
| 8 | 0.5 PK | 5076 | 5-Volt Reference (LU3 or LMF) |
| 9 | 0.5 WH | 5075 | Current Sensor Signal (LU3 or LMF) |
| 10 | 0.5 BN | 5077 | Low Reference (LU3 or LMF) |
| 11 | 0.35 YE | 43 | Ignition Voltage |
| 12 | -- | -- | Not Used |
| 13 | 0.35 OG | 300 | Ignition Voltage |
| 14-15 | -- | -- | Not Used |
| 16 | 0.35 L-BU | 1134 | Park Brake Switch Signal |
| 17 | -- | -- | Not Used |
| 18 | 0.35 TN | 28 | Horn Relay Control |
| 19 | -- | -- | Not Used |
| 20 | 0.35 GY | 91 | Windshield Wiper Switch Signal 2 |
| 21 | 0.35 TN | 860 | Front Windshield Wiper Switch High Signal |
| 22 | -- | -- | Not Used |
| 23 | 0.35 PK/WH | 1970 | Headlamp Low Beam Relay Control |
| 24 | 0.35 D-BU | 45 | Park Lamp Control |
| 25 | -- | -- | Not Used |

# Body Control Module (BCM) X6




**Connector Part Information**

Harness: Instrument Panel

OEM: 15482793

Service: 88988842

Description: 25-Way F HIT Series (PK)

**Terminal Part Information**

Pins: 2

Terminal/Tray: SNAC-A061T-M2.8/20

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

Pins: 8-10, 12, 14-16, 18, 22

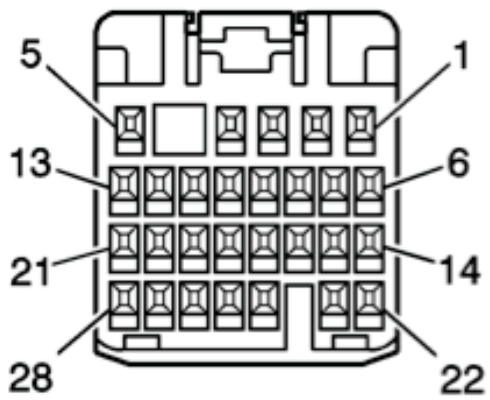
Terminal/Tray: SNAC3-A021T-M0.64/20

Core/Insulation Crimp: J/J

Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | -- | -- | Not Used |
| 2 | 0.8 L-BU | 1320 | CHMSL Control (Passenger or Cargo) |
| 3-7 | -- | -- | Not Used |
| 8 | 0.35 TN/WH | 746 | Right Front Door Ajar Switch Signal |
| 9 | 0.35 D-BU | 245 | Passenger Door Lock Switch Unlock Control (AU3) |
| 10 | 0.35 GY/BK | 745 | Left Front Door Ajar Switch Signal |
| 11 | -- | -- | Not Used |
| 12 | 0.35 PK/BK | 1303 | Liftgate Ajar Switch Signal (Passenger or Cargo) |
| 13 | -- | -- | Not Used |
| 14 | 0.35 YE/BK | 1181 | Right Rear Door Open Switch Signal (Passenger or Cargo) |
| 15 | 0.35 D-BU/ WH | 1179 | Left Rear Door Open Switch Signal (E26) |
| 16 | 0.35 L-GN | 1177 | Right Front Door Open Switch Signal |
| 17 | -- | -- | Not Used |
| 18 | 0.35 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| 19-21 | -- | -- | Not Used |
| 22 | 0.35 L-GN | 5926 | Rear Access Open Switch Signal (Passenger or Cargo) |
| 23-25 | -- | -- | Not Used |

## Body Control Module (BCM) X7



**Connector Part Information**

Harness: Instrument Panel

OEM: 15466053

Service: 88988806

Description: 28-Way F HIT Series (GY)

**Terminal Part Information**

Pins: 2, 6, 7, 9, 11, 12, 23, 24

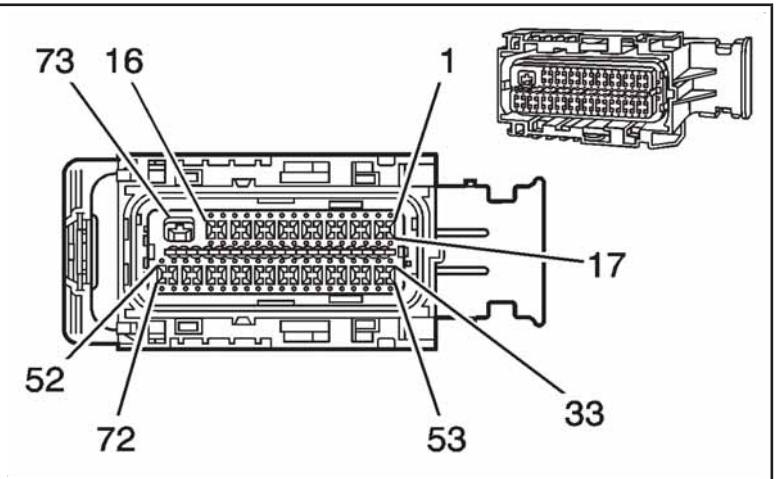
Terminal/Tray: SNAC3-A021T-M0.64/20

Core/Insulation Crimp: J/J

Release Tool/Test Probe: 15315247/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | -- | -- | Not Used |
| 2 | 0.5 YE | 356 | Driver Door Lock Relay Unlock Control (Passenger or Cargo with AU3) |
| 3-5 | -- | -- | Not Used |
| 6 | 0.5 YE | 356 | Driver Door Lock Relay Unlock Control (AU3) |
| 7 | 0.5 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| 8 | -- | -- | Not Used |
| 9 | 0.5 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3 without PRP) |
| 10 | -- | -- | Not Used |
| 11 | 0.5 OG/BK | 781 | Driver Door Lock Switch Unlock Signal (AU3) |
| 12 | 0.5 PK/BK | 780 | Driver Door Lock Switch Lock Signal (AU3) |
| 13-22 | -- | -- | Not Used |
| 23 | 0.5 TN | 126 | Left Front Door Open Switch Signal |
| 24 | 0.5 L-GN | 66 | A/C Request Signal (C60) |
| 25-28 | -- | -- | Not Used |

# Engine Control Module (ECM) X1 (LU3)




**Connector Part Information**

Harness: Engine

OEM: 13580810

Service: 88988931

Description: 73-Way F MX123 34566 Series Sealed (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.35 D-BU | 1161 | Accelerator Pedal Position (APP) Sensor 1 Signal |
| 2 | 0.8 PU | 1670 | Heated Oxygen Sensor (HO2S) High Signal - Bank 2 Sensor 2 |
| 3 | 0.5 D-BU | 5985 | Accessory Wakeup Serial Data |
| 4-5 | -- | -- | Not Used |
| 6 | 0.35 D-GN/WH | 465 | Fuel Pump Relay Control - Primary |
| 7 | -- | -- | Not Used |
| 8 | 0.35 TN | 5514 | Low Reference (C60) |
| 9 | 0.8 TN/WH | 1669 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 1 Sensor 2 |
| 10 | 0.8 TN | 1671 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 2 Sensor 2 |
| 11-12 | -- | -- | Not Used |
| 13 | 0.5 YE | 5991 | Powertrain Relay Control |
| 14 | -- | -- | Not Used |
| 15 | 0.8 GY/WH | 3122 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 1 Sensor 2 |
| 16 | 0.8 OG/WH | 3223 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 2 Sensor 2 |
| 17 | 0.8 PU/WH | 1668 | Heated Oxygen Sensor (HO2S) High Signal - Bank 1 Sensor 2 |
| 18 | 0.35 L-BU | 1162 | Accelerator Pedal Position (APP) Sensor 2 Signal |
| 19 | 0.5 PK | 439 | Ignition Voltage |
| 20 | 0.5 RD/WH | 440 | Battery Positive Voltage |
| 21 | 0.35 PU | 1272 | Low Reference |
| 22-23 | -- | -- | Not Used |
| 24 | 0.5 TN/BK | 6049 | Low Reference |
| 25 | 0.35 OG/BK | 380 | A/C Refrigerant Pressure Sensor Signal (C60) |
| 26 | -- | -- | Not Used |
| 27 | 0.35 BN/WH | 419 | MIL Control |
| 28-29 | -- | -- | Not Used |
| 30 | 0.35 D-GN/WH | 459 | A/C Compressor Clutch Relay Control (C60) |
| 31 | -- | -- | Not Used |
| 32 | 0.35 YE/BK | 625 | Starter Enable Relay Control |
| 33-34 | -- | -- | Not Used |



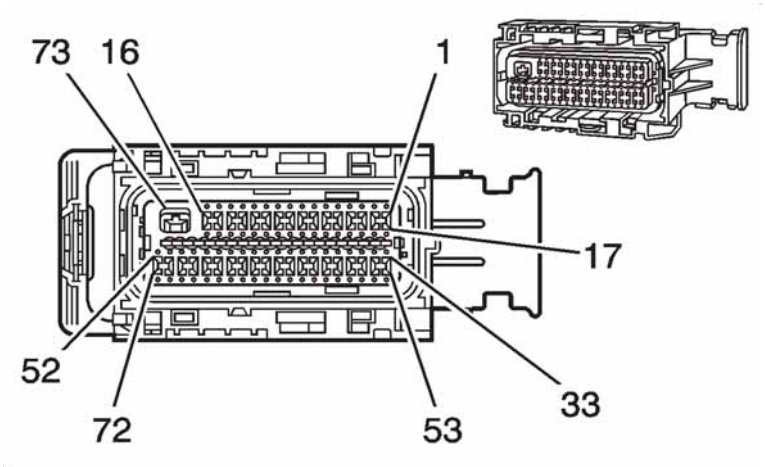
*(continued on next page)*

## Engine Control Module (ECM) X1 (LU3) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 35 | 0.8 TN | 2760 | Low Reference |
| 36 | -- | -- | Not Used |
| 37 | 0.5 YE | 492 | Mass Air Flow (MAF) Sensor Signal |
| 38 | -- | -- | Not Used |
| 39 | 0.5 PU | 1589 | Fuel Level Sensor Signal - Primary |
| 40 | -- | -- | Not Used |
| 41 | 0.35 BN | 1271 | Low Reference |
| 42 | 0.5 D-GN | 890 | Fuel Tank Pressure Sensor Signal |
| 43 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 44 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 45-46 | -- | -- | Not Used |
| 47 | 0.35 WH/BK | 1164 | 5-Volt Reference 2 |
| 48-49 | -- | -- | Not Used |
| 50 | 0.35 YE/BK | 1827 | Vehicle Speed Signal |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 51-53 | -- | -- | Not Used |
| 54 | 0.5 OG/BK | 6399 | Replicated TOS Signal |
| 55 | 0.5 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| 56 | -- | -- | Not Used |
| 57 | 0.35 OG/BK | 1786 | Park/Neutral Signal |
| 58 | 0.5 TN | 472 | Intake Air Temperature (IAT) Sensor Signal |
| 59-64 | -- | -- | Not Used |
| 65 | 0.35 GY | 2700 | 5-Volt Reference 1 (C60) |
| 66 | 0.5 GY | 2709 | 5-Volt Reference 1 |
| 67 | 0.35 TN | 1274 | 5-Volt Reference 1 |
| 68-69 | -- | -- | Not Used |
| 70 | 0.5 WH | 1310 | Evaporative Emission (EVAP) Canister Vent Solenoid Control |
| 71-72 | -- | -- | Not Used |
| 73 | 0.5 PK | 1339 | Ignition Voltage |

## Engine Control Module (ECM) X2 (LU3)




**Connector Part Information**

Harness: Engine

OEM: 13580811

Service:88988372

Description: 73-Way F MX123 34566 Series Sealed (L-GY)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1-3 | -- | -- | Not Used |
| 4 | 0.5 TN | 2761 | Low Reference |
| 5 | 0.35 GY/BK | 6272 | Low Reference |
| 6 | 0.5 TN | 1744 | Fuel Injector 1 Control |
| 7 | 0.5 YE/BK | 846 | Fuel Injector 6 Control |
| 8 | 0.5 TN/WH | 845 | Fuel Injector 5 Control |
| 9 | 0.5 BN | 2129 | Low Reference |
| 10 | 0.5 L-BU/BK | 844 | Fuel Injector 4 Control |
| 11 | 0.5 PK/BK | 1746 | Fuel Injector 3 Control |
| 12 | 0.5 L-GN/BK | 1745 | Fuel Injector 2 Control |
| 13 | 0.5 GY | 2704 | 5-Volt Reference 1 |
| 14-15 | -- | -- | Not Used |
| 16 | 0.5 YE | 581 | Throttle Actuator Control Motor Control - 1 |
| 17-19 | -- | -- | Not Used |
| 20 | 0.35 BN | 6266 | Low Reference |
| 21 | -- | -- | Not Used |
| 22 | 0.5 PU | 2121 | Ignition Coil 1 Control |
| 23 | 0.5 L-BU | 2123 | Ignition Coil 3 Control |
| 24 | 0.5 OG/WH | 2122 | Ignition Coil 2 Control |
| 25-29 | -- | -- | Not Used |
| 30 | 0.5 D-GN/WH | 428 | Evaporative Emission (EVAP) Canister Purge Solenoid Control |
| 31 | 0.5 OG | 225 | Generator Turn On Signal |
| 32 | 0.5 BN | 582 | Throttle Actuator Control Motor Control - 2 |
| 33 | 0.35 D-BU | 6259 | 5-Volt Reference 1 |
| 34 | -- | -- | Not Used |
| 35 | 0.35 GY | 2705 | 5-Volt Reference 1 |
| 36 | 0.35 TN/WH | 331 | Oil Pressure Sensor Signal |
| 37 | 0.8 PU/WH | 1665 | Heated Oxygen Sensor (HO2S) High Signal - Bank 1 Sensor 1 |
| 38 | 0.8 PU | 1666 | Heated Oxygen Sensor (HO2S) High Signal - Bank 2 Sensor 1 |
| 39 | 0.5 L-GN | 432 | Manifold Absolute Pressure (MAP) Sensor Signal |
| 40 | 0.35 TN | 2752 | Low Reference |
| 41 | 0.35 BK | 2755 | Low Reference |
| 42 | -- | -- | Not Used |



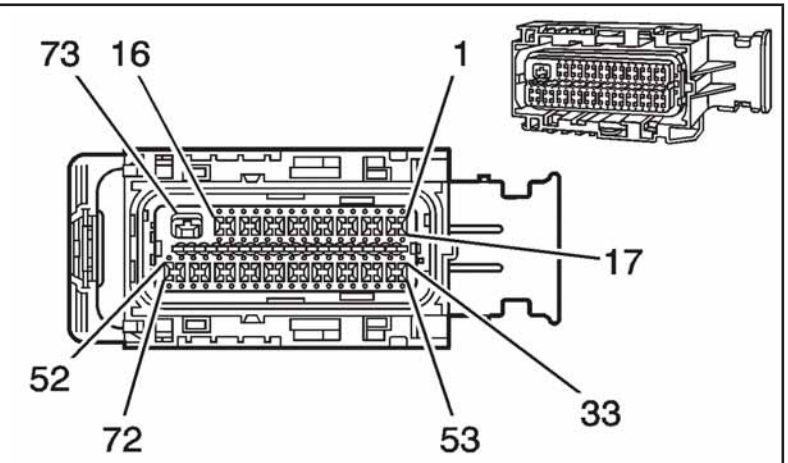
*(continued on next page)*

## Engine Control Module (ECM) X2 (LU3) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 43 | 0.5 GY | 23 | Generator Field Duty Cycle Signal |
| 44 | -- | -- | Not Used |
| 45 | 0.35 WH/BK | 6271 | Crankshaft Position (CKP) Sensor Signal |
| 46 | 0.35 D-BU/ WH | 6265 | Camshaft Position (CMP) Sensor Signal |
| 47 | -- | -- | Not Used |
| 48 | 0.8 TN | 1664 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 1 Sensor 1 |
| 49 | 0.5 OG/BK | 469 | Low Reference |
| 50 | 0.5 GY | 1716 | Knock Sensor (KS) 1 Signal |
| 51 | 0.5 D-BU | 496 | Knock Sensor (KS) 1 Signal |
| 52 | -- | -- | Not Used |
| 53 | 0.35 GY | 2701 | 5-Volt Reference 2 |
| 54 | 0.35 PU/WH | 6270 | 5-Volt Reference 2 |
| 55-56 | -- | -- | Not Used |
| 57 | 0.35 D-GN | 485 | Throttle Position (TP) Sensor 1 Signal |
| 58 | 0.5 YE | 410 | Engine Coolant Temperature (ECT) Sensor Signal |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 59 | 0.35 PU | 486 | Throttle Position (TP) Sensor 2 Signal |
| 60-64 | -- | -- | Not Used |
| 65 | 0.8 GY/WH | 3113 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 1 Sensor 1 |
| 66 | 0.8 L-GN | 3212 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 2 Sensor 1 |
| 67 | -- | -- | Not Used |
| 68 | 0.8 TN | 1667 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 2 Sensor 1 |
| 69 | -- | -- | Not Used |
| 70 | 0.5 GY | 2303 | Knock Sensor (KS) 2 Signal |
| 71 | 0.5 L-BU | 1876 | Knock Sensor (KS) 2 Signal |
| 72 | -- | -- | Not Used |
| 73 | 3 BK/WH | 1551 | Ground |

## Engine Control Module (ECM) X1 (L20, LMF or L96)




**Connector Part Information**

Harness: Engine

OEM: 13580802

Service: 88988931

Description: 73-Way F MX123 34566 Series Sealed (BK)

**Terminal Part Information**

Pins: 73

Terminal/Tray: 7116-4152-02/9

Core/Insulation Crimp: A/5

Release Tool/Test Probe: 12094430/J-35616-35 (VT)

Pins: 1, 12, 13, 23, 29, 30, 32, 34, 36, 50, 52, 56, 57, 63, 68

Terminal/Tray: 33467-0003/23

Core/Insulation Crimp: H/H

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 9, 16, 18-20, 24, 27, 28, 31, 33, 37, 38, 41, 47, 59, 61, 71, 10, 11, 49, 64, 65, 69

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: Pins 9, 16, 18-20, 24, 27, 28, 31, 33, 37, 38, 41, 47, 59, 61, 71 - J/J

Core/Insulation Crimp: Pins 10, 11, 49, 64, 65, 69 - K/K

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.5 OG/BK | 1786 | Park/Neutral Signal |
| 2-8 | -- | -- | Not Used |
| 9 | 0.5 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| 10 | 0.8 PU/WH | 1668 | Heated Oxygen Sensor (HO2S) High Signal - Bank 1 Sensor 2 |
| 11 | 0.8 TN/WH | 1669 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 1 Sensor 2 |
| 12 | 0.35 OG/BK | 380 | A/C Refrigerant Pressure Sensor Signal (C60) |
| 13 | 0.35 TN | 5514 | Low Reference (C60) |
| 14-15 | -- | -- | Not Used |
| 16 | 0.5 PU | 1589 | Fuel Level Sensor Signal - Primary |
| 17 | -- | -- | Not Used |
| 18 | 0.5 D-BU | 5985 | Accessory Wakeup Serial Data |
| 19 | 0.5 PK | 439 | Ignition Voltage |
| 20 | 0.5 RD/WH | 440 | Battery Positive Voltage |
| 21 | -- | -- | Not Used |
| 22 | 0.8 L-BU/BK | 6813 | Low Reference |
| 23 | 0.35 PU | 1272 | Low Reference |
| 24 | 0.5 D-GN | 890 | Fuel Tank Pressure Sensor Signal |
| 25-26 | -- | -- | Not Used |
| 27 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 28 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 29 | 0.35 D-BU | 1161 | Accelerator Pedal Position (APP) Sensor 1 Signal |
| 30 | 0.35 BN | 1271 | Low Reference |



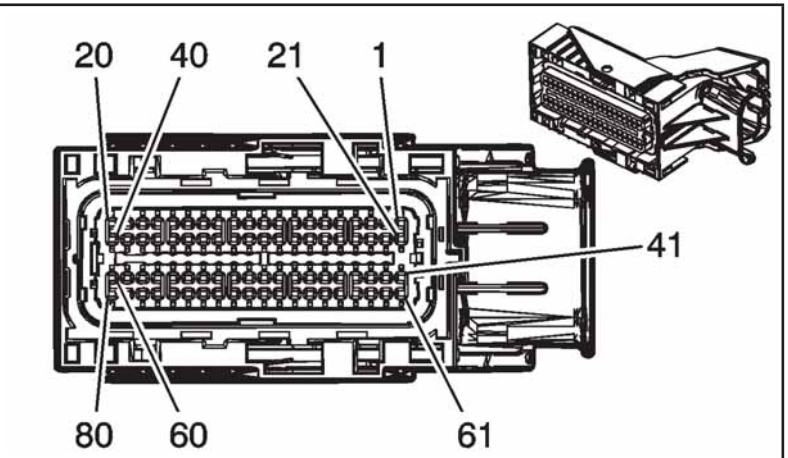
*(continued on next page)*

## Engine Control Module (ECM) X1 (L20, LMF or L96) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 31 | 0.5 TN/BK | 2759 | Low Reference (L20 or L96) |
| | 0.5 TN/BK | 6049 | Low Reference (LMF) |
| 32 | 0.35 L-BU | 1162 | Accelerator Pedal Position (APP) Sensor 2 Signal |
| 33 | 0.5 GY | 2709 | 5-Volt Reference 1 |
| 34 | 0.35 GY | 2700 | 5-Volt Reference 1 (C60) |
| 35 | -- | -- | Not Used |
| 36 | 0.35 TN | 1274 | 5-Volt Reference 1 |
| 37 | 0.5 TN/WH | 472 | Intake Air Temperature (IAT) Sensor Signal |
| 38 | 0.8 TN | 2760 | Low Reference |
| 39 | 0.8 L-GN | 2032 | Engine Coolant Temperature (ECT) Sensor Signal |
| 40 | -- | -- | Not Used |
| 41 | 0.8 YE | 492 | Mass Air Flow (MAF) Sensor Signal |
| 42-46 | -- | -- | Not Used |
| 47 | 0.5 PK | 1339 | Ignition Voltage |
| 48 | -- | -- | Not Used |
| 49 | 0.8 TN | 1671 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 2 Sensor 2 |
| 50 | 0.35 D-GN/ WH | 465 | Fuel Pump Relay Control - Primary |
| 51 | -- | -- | Not Used |
| 52 | 0.35 YE/BK | 625 | Starter Enable Relay Control |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 53-55 | -- | -- | Not Used |
| 56 | 0.35 WH/BK | 1164 | 5-Volt Reference 2 |
| 57 | 0.35 YE/BK | 1827 | Vehicle Speed Signal |
| 58 | -- | -- | Not Used |
| 59 | 0.5 YE | 5991 | Powertrain Relay Control |
| 60 | -- | -- | Not Used |
| 61 | 0.5 WH | 1310 | Evaporative Emission (EVAP) Canister Vent Solenoid Control |
| 62 | -- | -- | Not Used |
| 63 | 0.35 D-GN/ WH | 459 | A/C Compressor Clutch Relay Control (C60) |
| 64 | 0.8 OG/WH | 3223 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 2 Sensor 2 |
| 65 | 0.8 GY/WH | 3122 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 1 Sensor 2 |
| 66-67 | -- | -- | Not Used |
| 68 | 0.35 BN/WH | 419 | MIL Control |
| 69 | 0.8 PU | 1670 | Heated Oxygen Sensor (HO2S) High Signal - Bank 2 Sensor 2 |
| 70 | -- | -- | Not Used |
| 71 | 0.5 OG/BK | 6399 | Replicated TOS Signal |
| 72 | -- | -- | Not Used |
| 73 | 3 BK/WH | 1551 | Ground |

## Engine Control Module (ECM) X2 (L20, LMF or L96)




**Connector Part Information**

Harness: Engine

OEM: 13536319

Service: 19115670

Description: 80-Way F MX123 34566 Series (GY)

**Terminal Part Information**

Pins: 2, 3, 34, 35, 41, 43, 44, 50, 53, 58, 63-66, 68, 69

Terminal/Tray: 33467-0003/23

Core/Insulation Crimp: H/H

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 5, 6, 8, 17-22, 32, 33, 37-40, 61, 12, 13, 16, 26, 27, 29, 30, 52, 56, 57, 59, 60, 70-79

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: Pins 5, 6, 8, 17-22, 32, 33, 37-40, 61 - J/J

Core/Insulation Crimp: Pins 12, 13, 16, 26, 27, 29, 30, 52, 56, 57, 59, 60, 70-79 - K/K

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | -- | -- | Not Used |
| 2 | 0.35 PU/WH | 6270 | 5-Volt Reference 2 |
| 3 | 0.35 GY | 2701 | 5-Volt Reference 2 |
| 4 | -- | -- | Not Used |
| 5 | 0.5 BN | 582 | Throttle Actuator Control Motor Control - 2 |
| 6 | 0.5 YE | 581 | Throttle Actuator Control Motor Control - 1 |
| 7 | -- | -- | Not Used |
| 8 | 0.5 D-GN/WH | 428 | Evaporative Emission (EVAP) Canister Purge Solenoid Control |
| 9-11 | -- | -- | Not Used |
| 12 | 0.8 GY/WH | 3113 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 1 Sensor 1 |
| 13 | 0.8 L-GN | 3212 | Heated Oxygen Sensor (HO2S) Heater Low Control - Bank 2 Sensor 1 |
| 14-15 | -- | -- | Not Used |
| 16 | 0.8 PU | 5284 | Camshaft Phaser Intake Solenoid (1) (L96) |
| 17 | 0.5 D-BU/WH | 878 | Fuel Injector 8 Control |
| 18 | 0.5 TN/WH | 845 | Fuel Injector 5 Control |
| 19 | 0.5 YE/BK | 846 | Fuel Injector 6 Control |
| 20 | 0.5 TN | 1744 | Fuel Injector 1 Control |
| 21 | 0.5 YE | 410 | Engine Coolant Temperature (ECT) Sensor Signal |
| 22 | 0.5 TN | 2761 | Low Reference |
| 23-25 | -- | -- | Not Used |
| 26 | 0.8 D-BU | 496 | Knock Sensor (KS) 1 Signal |
| 27 | 0.8 GY | 1716 | Knock Sensor (KS) 1 Signal |
| 28 | -- | -- | Not Used |

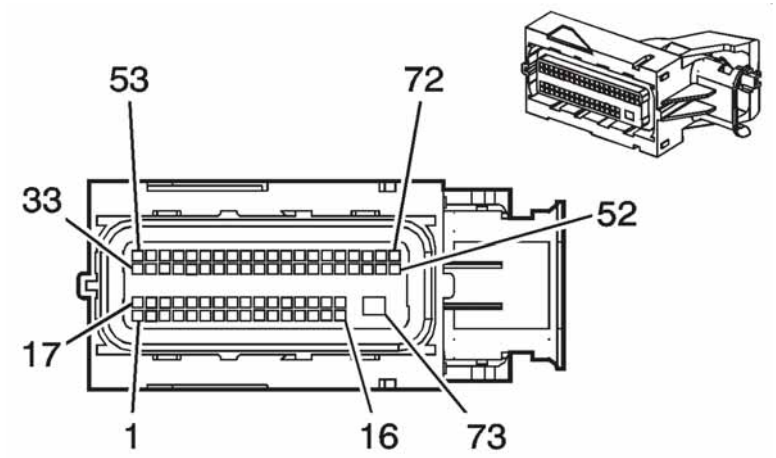


*(continued on next page)*

## Engine Control Module (ECM) X2 (L20, LMF or L96) (cont'd)

| 29 | 0.8 L-BU | 1876 | Knock Sensor (KS) 2 Signal |
|---|---|---|---|
| **Pin** | **Wire** | **Circuit** | **Function** |
| 30 | 0.8 GY | 2303 | Knock Sensor (KS) 2 Signal |
| 31 | -- | -- | Not Used |
| 32 | 0.5 GY | 23 | Generator Field Duty Cycle Signal |
| 33 | -- | -- | Not Used |
| 34 | 0.35 BK | 2755 | Low Reference |
| 35 | 0.35 TN | 2752 | Low Reference |
| 36 | -- | -- | Not Used |
| 37 | 0.5 L-GN/BK | 1745 | Fuel Injector 2 Control |
| 38 | 0.5 PK/BK | 1746 | Fuel Injector 3 Control |
| 39 | 0.5 L-BU/BK | 844 | Fuel Injector 4 Control |
| 40 | 0.5 OG/BK | 877 | Fuel Injector 7 Control |
| 41 | 0.35 GY | 2705 | 5-Volt Reference 1 |
| 42 | -- | -- | Not Used |
| 43 | 0.35 GY | 2704 | 5-Volt Reference 1 |
| 44 | 0.35 D-BU | 6259 | 5-Volt Reference 1 |
| 45-49 | -- | -- | Not Used |
| 50 | 0.35 TN/WH | 331 | Oil Pressure Sensor Signal |
| 51 | -- | -- | Not Used |
| 52 | 0.8 TN | 2199 | Low Reference (L96) |
| 53 | 0.35 OG/BK | 469 | Low Reference |
| 54-55 | -- | -- | Not Used |
| 56 | 0.8 TN | 1664 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 1 Sensor 1 |
| 57 | 0.8 PU/WH | 1665 | Heated Oxygen Sensor (HO2S) High Signal - Bank 1 Sensor 1 |
| 58 | 0.35 L-GN | 432 | Manifold Absolute Pressure (MAP) Sensor Signal |
| **Pin** | **Wire** | **Circuit** | **Function** |
| 59 | 0.8 PU | 1666 | Heated Oxygen Sensor (HO2S) High Signal - Bank 2 Sensor 1 |
| 60 | 0.8 TN | 1667 | Heated Oxygen Sensor (HO2S) Low Signal - Bank 2 Sensor 1 |
| 61 | 0.5 OG | 225 | Generator Turn On Signal |
| 62 | -- | -- | Not Used |
| 63 | 0.35 PU | 486 | Throttle Position (TP) Sensor 2 Signal |
| 64 | 0.35 D-BU/ WH | 6265 | Camshaft Position (CMP) Sensor Signal |
| 65 | 0.35 D-GN | 485 | Throttle Position (TP) Sensor 1 Signal |
| 66 | 0.35 BN | 6266 | Low Reference |
| 67 | -- | -- | Not Used |
| 68 | 0.35 WH/BK | 6271 | Crankshaft Position (CKP) Sensor Signal |
| 69 | 0.35 GY/BK | 6272 | Low Reference |
| 70 | 0.8 PU | 2121 | Ignition Coil 1 Control |
| 71 | 0.8 PU/WH | 2128 | Ignition Coil 8 Control |
| 72 | 0.8 OG | 2127 | Ignition Coil 7 Control |
| 73 | 0.8 OG/WH | 2122 | Ignition Coil 2 Control |
| 74 | 0.8 L-BU/WH | 2126 | Ignition Coil 6 Control |
| 75 | 0.8 D-GN | 2125 | Ignition Coil 5 Control |
| 76 | 0.8 D-GN/WH | 2124 | Ignition Coil 4 Control |
| 77 | 0.8 L-BU | 2123 | Ignition Coil 3 Control |
| 78 | 0.8 BN | 2129 | Low Reference |
| 79 | 0.8 BN/WH | 2130 | Low Reference |
| 80 | -- | -- | Not Used |

## Engine Control Module (ECM) X1 (LGH)




**Connector Part Information**

Harness: Engine Chassis

OEM: 13649839

Service: 13574946

Description: 73-Way F MX123 34566 Series (BU)

**Terminal Part Information**

Pins: 1-7, 9, 14-20, 22, 25-31, 33-36, 38-46, 48-59, 61-63, 65-72

Terminal/Tray: 33012-3002/26

Core/Insulation Crimp: E/2

Release Tool/Test Probe: J-38125-217/J-35616-14 (GN)

Pins: 73

Terminal/Tray: Service by Harness - See Part Catalog

Core/Insulation Crimp: Not Available

Release Tool/Test Probe: Pending

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.8 BN/WH | 3100 | DEF Dosing Valve Low Control |
| 2 | 0.8 BN | 3099 | DEF Dosing Valve High Control |
| 3 | 0.5 D-BU | 3105 | DEF Smart Pump Control |
| 4 | 0.5 D-GN/WH | 465 | Fuel Pump Primary Relay Control |
| 5 | 0.5 YE/BK | 625 | Starter Enable Relay Control |
| 6 | 0.8 D-GN | 3101 | DEF Reverting Valve High Control |
| 7 | 0.5 BN/WH | 6783 | Low Reference |
| 8 | -- | -- | Not Available |
| 9 | 0.5 L-BU/WH | 6311 | Cruise/ETC/TCC Brake Signal |
| 10-13 | -- | -- | Not Available |
| 14 | 0.5 GY | 2365 | 5 Volt Reference |
| 15 | 0.5 GY/BK | 2931 | Low Reference |
| 16 | 0.5 L-BU/WH | 6288 | Low Reference |
| 17 | 0.5 BN/WH | 419 | Check Engine Indicator Control |
| 18 | 0.5 PU | 2927 | Hydrocarbon Injector Low Control |
| 19 | 0.5 WH/BK | 2366 | Cooling Fan Control Relay Speed Signal |
| 20 | 0.5 D-BU | 507 | Wait To Start Indicator Control |
| 21 | 0.5 WH/BK | 2366 | Cooling Fan Control Relay Speed Signal |
| 22 | 0.5 TN | 3657 | Low Reference |
| 23-24 | -- | -- | Not Available |
| 25 | 0.5 OG/BK | 1786 | Transmission Park/Neutral Signal |
| 26 | 0.5 D-BU | 5985 | Accessory Wakeup Serial Data |
| 27 | 0.5 TN | 3661 | Low Reference |
| 28 | 0.5 TN | 2759 | Low Reference |
| 29 | 0.5 BN | 3108 | DEF Pressure Sensor Signal |
| 30 | 0.5 GY | 3106 | 5 Volt Reference |
| 31 | 0.5 TN | 3107 | Low Reference |
| 32 | -- | -- | Not Available |
| 33 | 0.5 D-BU | 2926 | Hydrocarbon Injector High Control |



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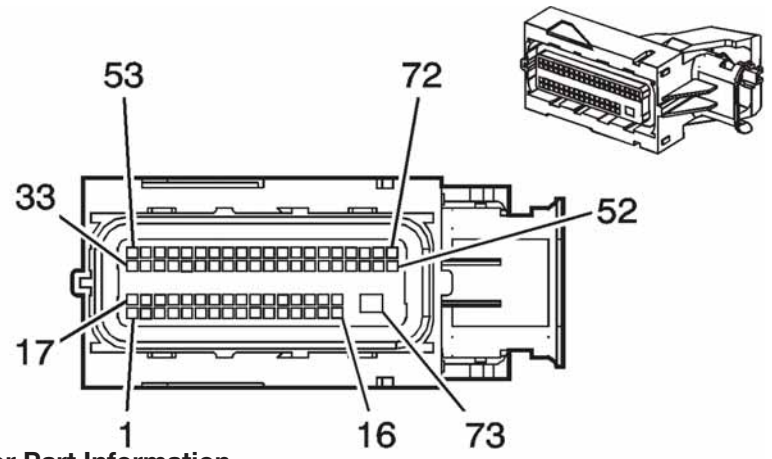
## Engine Control Module (ECM) X1 (LGH) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 34 | 0.5 D-GN/WH | 459 | A/C Compressor Clutch Relay Control |
| 35 | 0.5 TN | 3104 | Low Reference |
| 36 | 0.5 TN | 5514 | Low Reference |
| 37 | -- | -- | Not Available |
| 38 | 0.5 L-BU | 5377 | Exhaust Gas Temperature Sensor 2 Signal |
| 39 | 0.5 L-BU | 1162 | Accelerator Pedal Position Signal 2 |
| 40 | 0.5 TN/BK | 6289 | Induction Air Temperature Sensor Signal |
| 41 | 0.5 D-BU | 6053 | Exhaust Pressure Sensor Signal 1 |
| 42 | 0.5 WH/BK | 1164 | 5 Volt Reference |
| 43 | 0.5 GY | 6054 | 5 Volt Reference |
| 44 | 0.5 YE | 6055 | Low Reference |
| 45 | 0.5 L-GN | 7494 | High Speed GMLAN Serial Data (-) (3) |
| 46 | 0.5 TN | 2501 | High Speed GMLAN Serial Data (-) (1) |
| 47 | -- | -- | Not Available |
| 48 | 0.5 PK | 439 | Run/Crank Ignition 1 Voltage |
| 49 | 0.5 YE | 492 | Mass Air Flow Sensor Signal |
| 50 | 0.8 OG | 225 | Generator Turn On Signal |
| 51 | 0.5 PU | 1272 | Low Reference |
| 52 | -- | -- | Not Available |
| 53 | 0.8 BK | 3102 | DEF Reverting Valve Low Control |
| 54 | 0.5 GY | 3103 | DEF Smart Pump Supply Voltage |
| 55 | 0.5 BN | 1271 | Low Reference |
| 56 | 0.5 D-BU/WH | 3660 | Exhaust Gas Temperature Sensor 5 Signal |
| 57 | 0.5 L-GN | 5378 | Exhaust Gas Temperature Sensor 3 Signal |
| 58 | 0.5 PU | 1589 | Primary Fuel Level Sensor Signal |
| 59 | 0.5 OG/BK | 380 | A/C Refrigerant Pressure Sensor Signal |
| 60 | -- | -- | Not Available |
| 61 | 0.5 D-BU | 1161 | Accelerator Pedal Position Signal 1 |
| 62 | 0.5 TN | 1274 | 5 Volt Reference |
| 63 | 0.5 GY | 2700 | 5 Volt Reference |
| 64 | -- | -- | Not Available |
| 65 | 0.5 D-GN | 7493 | High Speed GMLAN Serial Data (+) (3) |
| 66 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data (+) (1) |
| 67 | 0.5 RD/WH | 440 | Battery Positive Voltage |
| 68 | 0.5 YE | 5991 | Powertrain Relay Coil Control |
| 69 | 0.5 D-BU | 2364 | Cooling Fan Speed Signal |
| 70 | 0.8 GY | 23 | Generator Field Duty Cycle Signal |
| 71 | 0.5 BN/WH | 6141 | Low Reference |
| 72 | 0.5 OG/BK | 6399 | Replicated TOS Signal |
| 73 | 3 PK | 1439 | Run/Crank Ignition 1 Voltage |

## Engine Control Module (ECM) X2 (LGH)




**Connector Part Information**

Harness: Engine

OEM: 12603596

Service: 13574947

Description: 73-Way F MX123 34566 Series (BK)

**Terminal Part Information**

Pins: 3, 5-10, 22, 25, 27, 41, 47, 66-67

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: K/K

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 4, 13-19, 21, 29-32

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: J/J

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 73

Terminal/Tray: 7116-4152-02/9

Core/Insulation Crimp: A/5

Release Tool/Test Probe: 12094430/J-35616-35 (VT)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1-2 | -- | -- | Not Available |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 3 | 0.5 YE | 2928 | Fuel Metering Valve High Control |
| 4 | 0.8 PU/WH | 2530 | Fuel Rail Pressure Solenoid Supply Voltage |
| 5 | 0.5 BK | 2929 | Fuel Metering Valve Low Control |
| 6 | 0.5 WH | 5931 | Variable Nozzle Turbo Solenoid Low Signal |
| 7 | 0.5 TN | 2752 | Low Reference |
| 8 | 0.5 TN | 2753 | Low Reference |
| 9 | 0.5 BN | 1174 | Oil Level Switch Signal |
| 10 | 0.5 BN | 6782 | Low Reference |
| 11-12 | -- | -- | Not Available |
| 13 | 0.8 BN/WH | 4901 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1 |
| 14 | 0.8 TN/WH | 4907 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7 |
| 15 | 0.8 L-BU | 4804 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 4 |
| 16 | 0.8 BN | 4801 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 1 |
| 17 | 0.8 BK/WH | 451 | Ground |
| 18 | 0.8 BK/WH | 451 | Ground |
| 19 | 0.8 YE | 2834 | Low Reference |
| 20 | -- | -- | Not Available |
| 21 | 0.8 BK/WH | 451 | Ground |
| 22 | 0.5 D-BU | 5930 | Variable Nozzle Turbo Solenoid High Signal |
| 23-24 | -- | -- | Not Available |
| 25 | 0.5 OG/BK | 5929 | Low Reference |
| 26 | -- | -- | Not Available |
| 27 | 0.5 YE/BK | 1827 | Vehicle Speed Signal |
| 28 | -- | -- | Not Available |

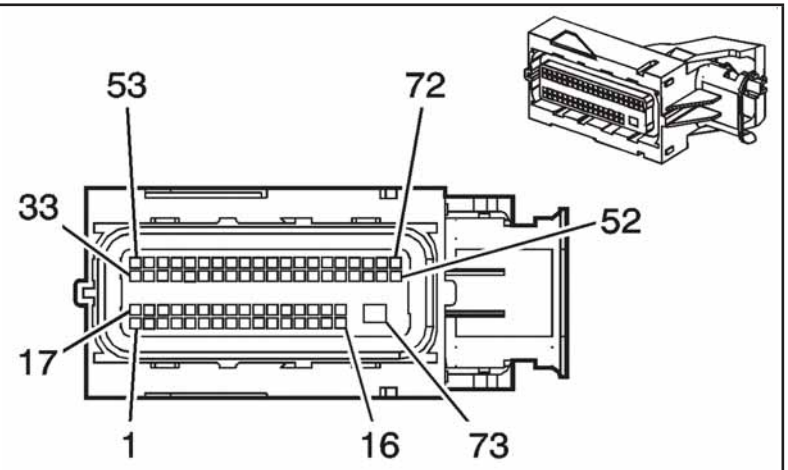


*(continued on next page)*

## Engine Control Module (ECM) X2 (LGH) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 29 | 0.8 L-BU/WH | 4904 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4 |
| 30 | 0.8 PU/WH | 4906 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6 |
| 31 | 0.8 TN | 4807 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 7 |
| 32 | 0.8 PU | 4806 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 6 |
| 33-40 | -- | -- | Not Available |
| 41 | 0.5 BK | 2755 | Low Reference |
| 42-46 | -- | -- | Not Available |
| 47 | 0.5 GY | 2702 | 5 Volt Reference |
| 48-65 | -- | -- | Not Available |
| 66 | 0.5 TN | 5928 | Variable Nozzle Turbo Position Sensor Voltage Reference |
| 67 | 0.5 PU/WH | 6270 | 5 Volt Reference |
| 68-72 | -- | -- | Not Available |
| 73 | 3 BK/WH | 451 | Ground |

## Engine Control Module (ECM) X3 (LGH)




**Connector Part Information**

Harness: Engine Chassis

OEM: 12603597

Service: 13574948

Description: 73-Way F MX123 34566 Series (GY)

**Terminal Part Information**

Pins: 2, 4, 6-7, 9-14, 16-21, 24, 27-32, 36-37, 40, 44, 46, 48, 54-55, 60-61, 65-68

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: J/J

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 49-52, 56-57, 70-72

Terminal/Tray: 33467-0005/23

Core/Insulation Crimp: K/K

Release Tool/Test Probe: J-38125-213/J-35616-64B (L-BU)

Pins: 73

Terminal/Tray: 7116-4152-02/9

Core/Insulation Crimp: A/5

Release Tool/Test Probe: 12094430/J-35616-35 (VT)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | -- | -- | Not Available |
| 2 | 0.5 BU/YE | 6861 | Water In Fuel Sensor Signal |
| 3 | -- | -- | Not Available |
| 4 | 0.5 TN/WH | 331 | Oil Pressure Sensor Signal |
| 5 | -- | -- | Not Available |
| 6 | 0.5 PU/WH | 7584 | Exhaust Gas Recirculation Temperature Sensor 1 Supply Voltage |
| 7 | 0.5 D-BU | 7583 | Exhaust Gas Recirculation Temperature Sensor 2 Supply Voltage |
| 8 | -- | -- | Not Available |
| 9 | 0.5 BN/WH | 5763 | Exhaust Gas Recirculation Valve Sensor Signal |
| 10 | 0.5 YE | 5947 | Variable Nozzle Turbo Position Sensor Signal |
| 11 | 0.5 YE | 1578 | Fuel Temperature Signal |
| 12 | 0.5 BN | 3681 | Charge Air Cooler Outlet Temperature Sensor Signal |
| 13 | 0.5 TN | 3680 | Charge Air Cooler Outlet Temperature Sensor Return |
| 14 | 0.5 TN | 2917 | 5 Volt Reference |
| 15 | -- | -- | Not Available |
| 16 | 0.5 GY | 2704 | 5 Volt Reference |
| 17 | 0.5 D-BU | 6863 | Low Reference |
| 18 | 0.5 D-BU | 5277 | Exhaust Gas Temperature Sensor 1 Signal |
| 19 | 0.5 D-GN | 485 | Throttle Position Sensor Signal 1 |
| 20 | 0.5 YE | 2918 | Fuel Rail Pressure Sensor Signal |
| 21 | 0.5 L-GN | 432 | Manifold Absolute Pressure Sensor Signal |
| 22-23 | -- | -- | Not Available |

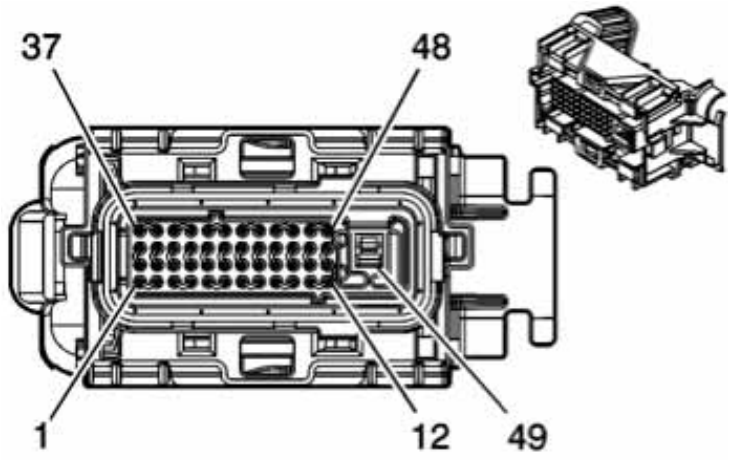


*(continued on next page)*

## Engine Control Module (ECM) X3 (LGH) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 24 | 0.5 YE | 410 | Engine Coolant Temperature Sensor Signal |
| 25-26 | -- | -- | Not Available |
| 27 | 0.5 BN/GY | 7072 | Sensor Fuel Temperature 1 Signal |
| 28 | 0.5 D-GN | 3683 | Charge Air Cooler Inlet Temperature Sensor Signal |
| 29 | 0.5 TN/BK | 3682 | Charge Air Cooler Inlet Temperature Sensor Return |
| 30 | 0.5 GY | 2705 | 5 Volt Reference |
| 31 | 0.5 D-BU | 6259 | 5 Volt Reference |
| 32 | 0.5 GY | 2701 | 5 Volt Reference |
| 33-35 | -- | -- | Not Available |
| 36 | 0.5 OG/BK | 2919 | Low Reference |
| 37 | 0.5 OG/BK | 469 | Low Reference |
| 38-39 | -- | -- | Not Available |
| 40 | 0.5 TN | 2761 | Low Reference |
| 41-43 | -- | -- | Not Available |
| 44 | 0.5 GY/BK | 5765 | Fuel Filter Pressure Switch Signal |
| 45 | -- | -- | Not Available |
| 46 | 0.5 BN/WH | 7073 | Sensor Fuel Temperature 1 Return |
| 47 | -- | -- | Not Available |
| 48 | 0.5 BN | 6062 | Low Reference |
| 49 | 0.8 GY/WH | 4908 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8 |
| 50 | 0.8 D-BU/WH | 4902 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2 |
| 51 | 0.8 D-BU | 4802 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 2 |
| 52 | 0.8 L-BU | 4805 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 5 |
| 53 | -- | -- | Not Available |
| 54 | 0.5 L-GN/BK | 5746 | Exhaust Gas Recirculation Valve Motor Low Signal |
| 55 | 0.5 OG/BK | 5764 | Exhaust Gas Recirculation Valve Motor High Signal |
| 56 | 0.8 BN | 582 | Throttle Actuator Control Close |
| 57 | 0.8 YE | 581 | Throttle Actuator Control Open |
| 58-59 | -- | -- | Not Available |
| 60 | 0.5 GY/BK | 6272 | Low Reference |
| 61 | 0.5 WH/BK | 6271 | CKP Sensor Signal |
| 62-64 | -- | -- | Not Available |
| 65 | 0.5 D-BU/WH | 6265 | CMP Sensor Signal |
| 66 | 0.5 BN | 6266 | Low Reference |
| 67 | 0.5 BN | 6274 | Low Reference |
| 68 | 0.5 WH | 6275 | Low Reference |
| 69 | 0.8 D-GN/WH | 4903 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3 |
| 70 | 0.8 L-GN/WH | 4905 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5 |
| 71 | 0.8 D-GN | 4803 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 3 |
| 72 | 0.8 GY | 4808 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 8 |
| 73 | 3 BK/WH | 451 | Ground |

# Transmission Control Module (TCM) (M30)




**Connector Part Information**

Harness Type: Engine

OEM Connector: 15463921

Service Connector: 88987979

Description: 49-Way F GT 280 Micro-Pack 64 Series, Sealed (BK)

**Terminal Part Information**

Pins: 1-3, 5-7, 11, 15-17, 19-20, 23, 25, 29-32, 35, 37-42, 45-46

Terminated Lead: Pins: 1-2, 5-7, 11, 15-16, 19-20, 25, 31, 37-38, 41-42 - 13575528

Terminated Lead: Pins: 3, 17, 23, 29-30, 32, 35, 39-40, 45-46 - Pending

Release Tool: J-38125-21

Diagnostic Test Probe: J-35616-64B (L-BU)

Terminal/Tray: 15359541/4

Core/Insulation Crimp: M/M

Pin 49

Terminated Lead: 13575386

Release Tool: J-38125-553

Diagnostic Test Probe: J-35616-4A (PU)

Terminal/Tray: 15392777/23

Core/Insulation Crimp: D/5

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.5 BN | 418 | Torque Converter Clutch Pulse Width Modulation (TCC PWM) Solenoid Valve Control |
| 2 | 0.5 L-GN | 1222 | Shift Solenoid A Valve Control |
| 3 | 0.5 OG/BK | 1230 | Automatic Transmission Input Speed Sensor (AT ISS) High Signal |
| 4 | -- | -- | Not Used |
| 5 | 0.5 OG/BK | 6399 | Replicated TOS Signal |
| 6 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 7 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 8-10 | -- | -- | Not Used |
| 11 | 0.5 D-BU | 5985 | Accessory Wakeup Serial Data |
| 12-14 | -- | -- | Not Used |
| 15 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 16 | 0.5 L-GN/BK | 822 | Vehicle Speed Sensor (VSS) Low Signal |
| 17 | 0.35 L-BU/WH | 1229 | PC Solenoid Valve Low Control (Sol. A) |
| 18 | -- | -- | Not Used |
| 19 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 20 | 0.5 YE/BK | 1223 | Shift Solenoid B Valve Control |
| 21-22 | -- | -- | Not Used |
| 23 | 0.35 GY | 773 | Transmission Range Switch Signal C |
| 24 | -- | -- | Not Used |
| 25 | 0.5 TN/BK | 422 | Torque Converter Clutch (TCC) Solenoid Valve Control |



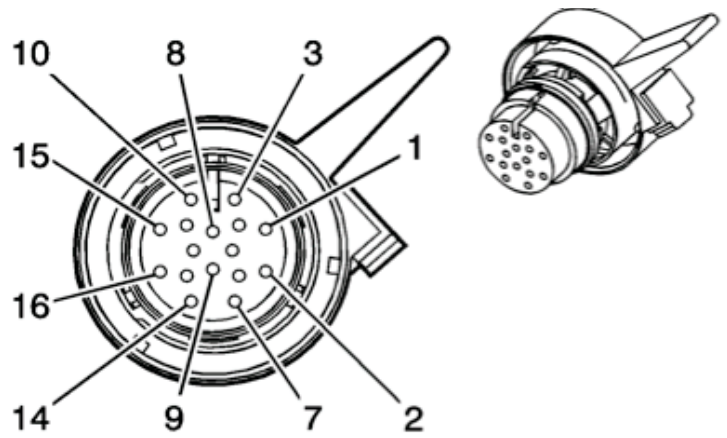
*(continued on next page)*

## Transmission Control Module (TCM) (M30) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 26-28 | -- | -- | Not Used |
| 29 | 0.35 TN/WH | 771 | Transmission Range Switch Signal A |
| 30 | 0.35 TN | 452 | Low Reference |
| 31 | 0.5 PK | 2139 | Ignition Voltage |
| 32 | 0.35 RD/WH | 1840 | Battery Positive Voltage |
| 33-34 | -- | -- | Not Used |
| 35 | 0.35 YE/BK | 1227 | Transmission Fluid Temperature (TFT) Sensor Signal |
| 36 | -- | -- | Not Used |
| 37 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 38 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 39 | 0.35 WH | 776 | Transmission Range Switch Signal P |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 40 | 0.35 OG/BK | 1228 | PC Solenoid Valve High Control (Sol. A) |
| 41 | 0.5 PU/WH | 821 | Vehicle Speed Sensor (VSS) High Signal |
| 42 | 0.5 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| 43-44 | -- | -- | Not Used |
| 45 | 0.35 D-BU/ WH | 1231 | Low Reference |
| 46 | 0.35 YE | 772 | Transmission Range Switch Signal B |
| 47-48 | -- | -- | Not Used |
| 49 | 2 BK/WH | 1551 | Ground |

## Control Solenoid Valve Assembly X1 (MYD)




**Connector Part Information**

Harness Type: Engine (L20 or L96)

Harness Type: Transmission Jumper (LGH or LML)

OEM Connector: 15491328

Service Connector: 15131300

Description: 16-Way F 1.5 Series, Sealed (BK)

**Terminal Part Information**

Terminated Lead: Pins: 1, 4 - 13575426

Terminated Lead: Pins: 2-3, 5-6, 8-16 - 13575434

Release Tool: J-38125-28

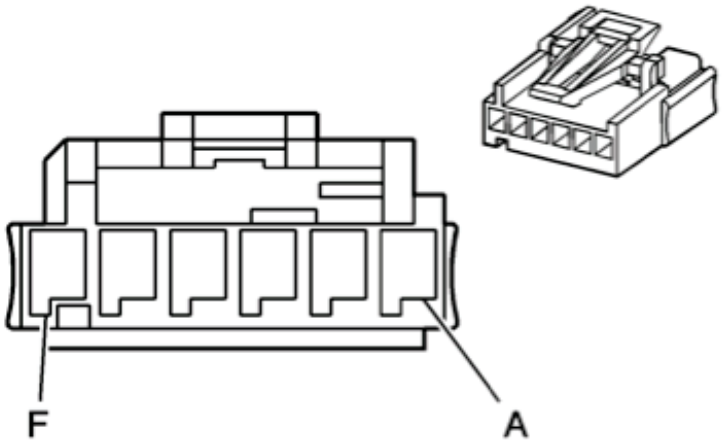
Diagnostic Test Probe: J-35616-66 (YE)

Terminal/Tray: 2 21 24 47220 0/12

Core/Insulation Crimp: E/1

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.35 RD/WH | 1840 | Battery Positive Voltage (LMM or LGH) |
| 2 | 0.8 BK/WH | 1551 | Ground (LMM or LGH) |
| 3 | 0.5 OG/BK | 1786 | Park/Neutral Signal |
| 4 | 0.35 RD/WH | 1840 | Battery Positive Voltage (L20 or L96) |
| 5 | 0.8 BK/WH | 1551 | Ground (L20 or L96) |
| 6 | 0.5 L-BU/WH | 6311 | Brake Switch Signal |
| 7 | -- | -- | Not Used |
| 8 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 9 | 0.5 D-BU | 5985 | Accessory Wakeup Serial Data |
| 10 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 11 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 12 | 0.5 PK | 2139 | Ignition 1 Voltage |
| 13 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 14 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 15 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 16 | 0.5 OG/BK | 6399 | Replicated TOS Signal |

## Control Solenoid Valve Assembly X2 (MYD)




**Connector Part Information**

Harness Type: Automatic Transmission

OEM Connector: 15336500

Service Connector: 89046635

Description: 6-Way F Metri-Pack 150.2 Series (GN)

**Terminal Part Information**

Terminated Lead: Service by Connector Assembly - 89046635

Release Tool: Not Available

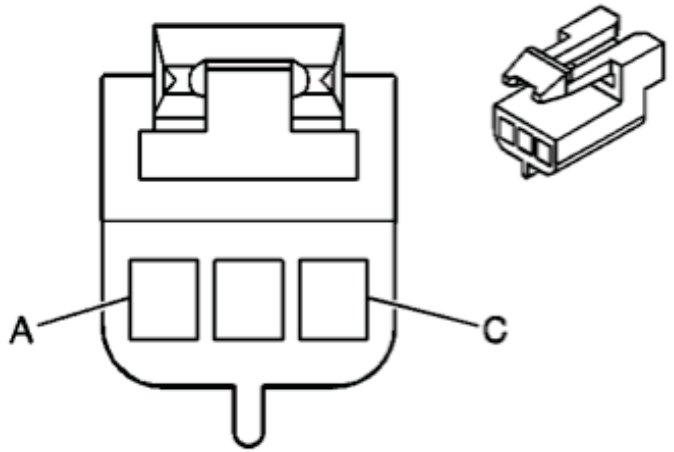
Diagnostic Test Probe: Not Available

Terminal/Tray: Not Available

Core/Insulation Crimp: Not Available

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | GY | -- | Ground |
| B | BK | -- | Transmission Range Switch Signal P |
| C | YE | -- | Transmission Range Switch Signal C |
| D | RD | -- | Transmission Range Switch Signal B |
| E | GN | -- | Transmission Range Switch Signal A |
| F | WH | -- | Park/Neutral Switch Signal |

## Control Solenoid Valve Assembly X3 (MYD)

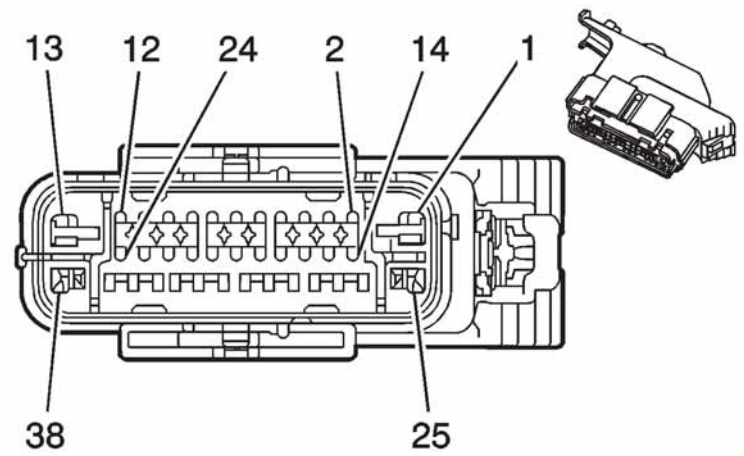



**Connector Part Information**
Harness Type: Automatic Transmission
OEM Connector: 12064758
Service Connector: 12117320
Description: 3-Way F Metri-Pack 150 Series (BK)

**Terminal Part Information**
Terminated Lead: Service by Connector Assembly - 12117320
Release Tool: Not Available
Diagnostic Test Probe: Not Available
Terminal/Tray: Not Available
Core/Insulation Crimp: Not Available

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | GN | -- | Input Speed Sensor (ISS) Signal |
| B | RD | -- | 8-Volt Reference |
| C | BK | -- | Output Speed Sensor (OSS) Signal |

## Electronic Brake Control Module (EBCM) (JL4)




**Connector Part Information**

Harness: Chassis

OEM: 13528146

Service: 19178085

Description: 38-Way F 2.8 Series Sealed (BK)

**Terminal Part Information**

Pins: 1, 13
Terminal/Tray: 7116-4142-02/10
Core/Insulation Crimp: D/3
Release Tool/Test Probe: 12094430/J-35616-42 (RD)

Pins: 2-9, 12, 16, 17, 19, 20-24, 28-33, 36, 37
Terminal/Tray: 7116-3703-02
Core/Insulation Crimp: See Terminal Repair Kit
Release Tool/Test Probe: See Terminal Repair Kit

Pins: 25, 38
Terminal/Tray: 15304720/19
Core/Insulation Crimp: 4/5
Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 5 BK | 2150 | Ground |
| 2 | 0.5 WH | 883 | Low Reference |
| 3 | 0.5 BN | 882 | Right Rear Wheel Speed Sensor Signal |
| 4 | 0.5 TN | 884 | Left Rear Wheel Speed Sensor Signal |
| 5 | 0.5 OG | 885 | Low Reference |
| 6 | 0.5 TN | 833 | Low Reference |
| 7 | 0.5 YE | 6046 | Steering Angle Sensor Phase A |
| 8 | 0.5 TN | 6048 | Steering Angle Sensor Phase C |
| 9 | 0.5 L-GN | 6043 | Steering Angle Sensor Signal |
| 10-11 | -- | -- | Not Used |
| 12 | 0.5 L-BU | 5986 | Serial Data Communication Enable |
| 13 | 5 RD/BK | 442 | Battery Positive Voltage |
| 14-15 | -- | -- | Not Used |
| 16 | 0.5 OG/BK | 6045 | Low Reference |
| 17 | 0.5 D-GN | 872 | Right Front Wheel Speed Sensor Signal |
| 18 | -- | -- | Not Used |
| 19 | 0.5 GY/BK | 1337 | 12-Volt Reference |
| 20 | 0.5 D-BU | 6047 | Steering Angle Sensor Phase B |
| 21 | 0.5 WH/BK | 6436 | CAN Bus Low Terminated Serial Data |
| 22 | -- | -- | Not Used |
| 23 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 24 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 25 | 3 BK | 2150 | Ground |
| 26-27 | -- | -- | Not Used |
| 28 | 0.5 L-BU | 830 | Left Front Wheel Speed Sensor Signal |



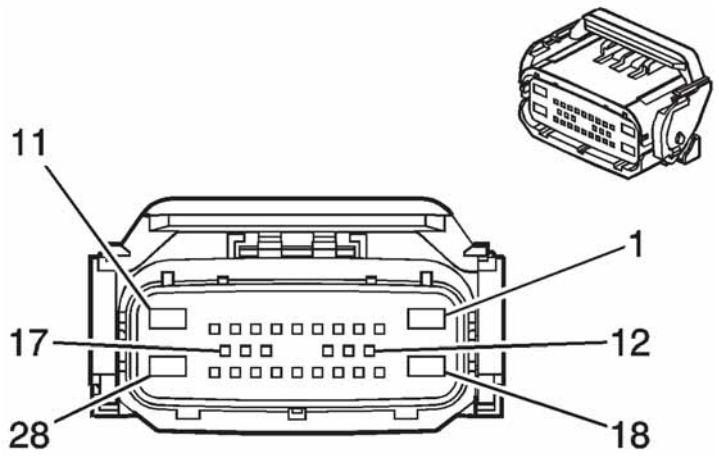
*(continued on next page)*

## Electronic Brake Control Module (EBCM) (JL4) (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 29 | 0.5 YE | 873 | Low Reference |
| 30 | 0.5 BK/PU | 7499 | Low Reference |
| 31 | 0.5 GY | 6044 | 5-Volt Reference |
| 32 | 0.5 YE/BK | 1827 | Vehicle Speed Signal |
| 33 | 0.5 BN/WH | 6437 | CAN Bus High Terminated Serial Data |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 34-35 | -- | -- | Not Used |
| 36 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 37 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 38 | 3 RD/WH | 1640 | Battery Positive Voltage |

## Electronic Brake Control Module (EBCM) (without JL4)




**Connector Part Information**

Harness: Chassis

OEM: 13628862

Service: 19149286

Description: 28-Way F 0.64/6.3 Series Sealed (BK)

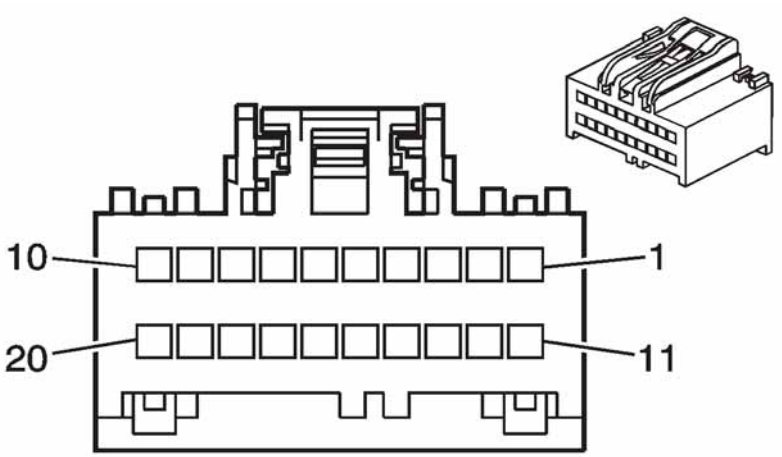
**Terminal Part Information**

Pins: 2, 3, 12, 13, 15, 16, 19, 20, 26, 27
Terminal/Tray: SAITS-A03T-M064/ YAZAKI 14
Core/Insulation Crimp: 9/9
Release Tool/Test Probe: J-38125-215A/J-35616-64B (L-BU)

Pins: 1, 11, 18, 28
Terminal/Tray: 7116-4142-02/10
Core/Insulation Crimp: Pins 1, 11 - A/3
Core/Insulation Crimp: Pins 18, 28 - D/3
Release Tool/Test Probe: 12094430/J-35616-42 (RD)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 3 RD/WH | 1640 | Battery Positive Voltage |
| 2 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 3 | 0.5 TN/BK | 2500 | High Speed GMLAN Serial Data Bus (+) |
| 4-10 | -- | -- | Not Used |
| 11 | 3 BK | 2150 | Ground |
| 12 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 13 | 0.5 TN | 2501 | High Speed GMLAN Serial Data Bus (-) |
| 14 | -- | -- | Not Used |
| 15 | 0.5 L-BU | 830 | Left Front Wheel Speed Sensor Signal |
| 16 | 0.5 YE | 873 | Low Reference |
| 17 | -- | -- | Not Used |
| 18 | 5 RD/BK | 442 | Battery Positive Voltage |
| 19 | 0.5 L-BU | 5986 | Serial Data Communication Enable |
| 20 | 0.5 YE/BK | 1827 | Vehicle Speed Signal |
| 21-25 | -- | -- | Not Used |
| 26 | 0.5 D-GN | 872 | Right Front Wheel Speed Sensor Signal |
| 27 | 0.5 TN | 833 | Low Reference |
| 28 | 5 BK | 2150 | Ground |

# Instrument Panel Cluster (IPC)




**Connector Part Information**

Harness: Instrument Panel

OEM: 15489824

Service: 15126711

Description: 20-Way F 0.64 Series (BK)

**Terminal Part Information**

Pins: 1, 3-5, 7, 9-20

Terminal/Tray: 7116-4618-02

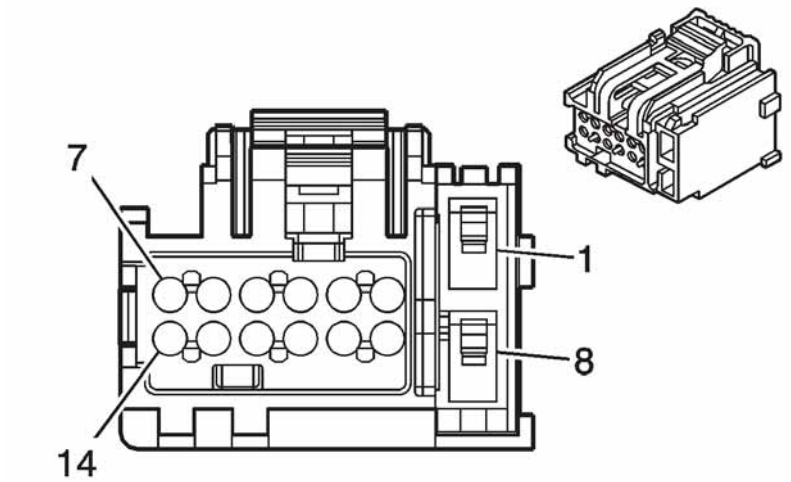
Core/Insulation Crimp: Pins 1, 4, 5, 7, 9, 12, 13, 16-20 - P/P

Core/Insulation Crimp: Pins 3, 10, 11, 14, 15 - See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |
| 2 | -- | -- | Not Used |
| 3 | 0.5 L-GN | 1478 | Coolant Level Switch Signal (LMM or LGH) |
| 4 | 0.35 BN/WH | 419 | MIL Control |
| 5 | 0.35 PU | 5234 | Passenger Seat Belt Indicator (Light Duty without YF7) |
| 6 | -- | -- | Not Used |
| 7 | 0.35 BK/WH | 351 | Ground |
| 8 | -- | -- | Not Used |
| 9 | 0.35 D-BU | 507 | Wait to Start Indicator Control (LMM or LGH) |
| 10 | 0.5 D-GN/WH | 636 | Ambient Air Temperature Sensor Signal (UFA) |
| 11 | 0.5 YE | 61 | Low Reference (UFA) |
| 12 | 0.35 D-BU | 2307 | Passenger Air Bag On Indicator Control (Light Duty without YF7) |
| 13 | 0.35 D-GN | 2308 | Passenger Air Bag Off Indicator Control (Light Duty without YF7) |
| 14 | 0.5 TN/WH | 33 | Brake Warning Indicator Control |
| 15 | 0.5 PU | 333 | Brake Fluid Level Sensor Signal |
| 16 | 0.35 PK | 893 | Driver Information Center (DIC) Select Menu Switch Signal |
| 17 | 0.35 D-GN/WH | 1358 | Driver Information Center (DIC) Switch Signal |
| 18 | 0.35 BN | 897 | Low Reference |
| 19 | 0.35 PK | 1639 | Ignition Voltage |
| 20 | 0.35 RD/WH | 2840 | Battery Positive Voltage |

## Radio X1




**Connector Part Information**

Harness: Instrument Panel

OEM: 13545675

Service: 88988731

Description: 14-Way F GT 150 Micro 64 Modular (BK)

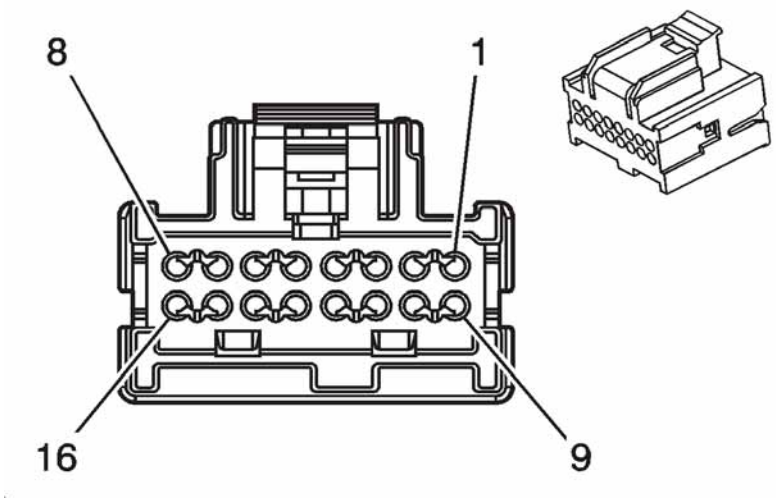
**Terminal Part Information**

Pins: 1, 8
Terminal/Tray: 12191812/19
Core/Insulation Crimp: C/A
Release Tool/Test Probe: J-38125-553/J-35616-2A (GY)

Pins: 2, 3, 7, 9, 10, 13
Terminal/Tray: 15359541/4
Core/Insulation Crimp: M/M
Release Tool/Test Probe: J-38125-21/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 1 RD/WH | 340 | Battery Positive Voltage |
| 2 | 0.8 D-BU | 1857 | Left Front Midrange Speaker Output (+) |
| 3 | 0.8 OG | 1853 | Right Front Midrange Speaker Output (+) |
| 4-6 | -- | -- | Not Used |
| 7 | 0.35 YE | 6817 | LED Backlight Dimming Control |
| 8 | 1 BK/WH | 351 | Ground |
| 9 | 0.8 L-BU | 1957 | Left Front Midrange Speaker Output (-) |
| 10 | 0.8 D-GN | 1953 | Right Front Midrange Speaker Output (-) |
| 11-12 | -- | -- | Not Used |
| 13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |
| 14 | -- | -- | Not Used |

## Radio X2




**Connector Part Information**

Harness: Instrument Panel

OEM: 13567860

Service: 13504130

Description: 16-Way F Micro-Pack 0.64 Series (PU)

**Terminal Part Information**

Pins: 1-2, 5-7, 9-10, 13-15

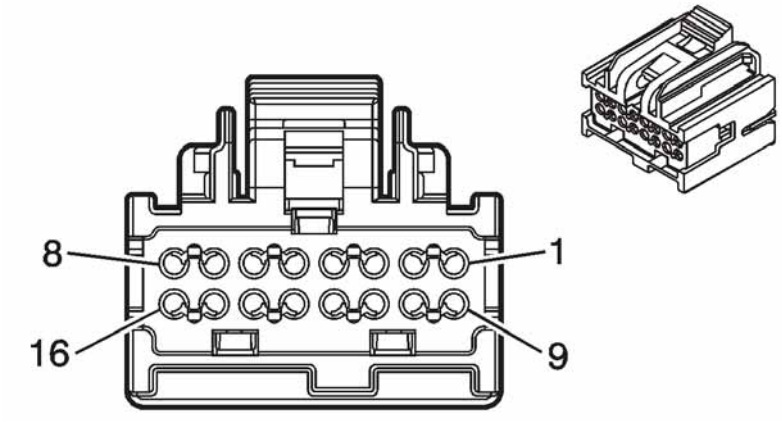
Terminal/Tray: 15359541/4

Core/Insulation Crimp: M/M

Release Tool/Test Probe: J-38125-21/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.35 BN/WH | 367 | Left Audio Signal (+) (U2K) |
| 2 | 0.35 D-GN/ WH | 368 | Right Audio Signal (+) (U2K) |
| 3-4 | -- | -- | Not Used |
| 5 | 0.8 TN | 1859 | Left Rear Midrange Speaker Output (+) |
| 6 | 0.8 TN | 1855 | Right Rear Midrange Speaker Output (+) |
| 7 | 0.8 D-BU | 658 | Cellular Telephone Voice Signal (UE1) |
| 8 | -- | -- | Not Used |
| 9 | 0.35 TN/WH | 372 | Left Audio Signal (-) (U2K) |
| 10 | 0.35 GY | 388 | Right Audio Signal (-) (U2K) |
| 11-12 | -- | -- | Not Used |
| 13 | 0.8 WH | 1959 | Left Rear Midrange Speaker Output (-) |
| 14 | 0.8 OG | 1955 | Right Rear Midrange Speaker Output (-) |
| 15 | 0.8 L-BU/BK | 659 | Low Reference (UE1) |
| 16 | -- | -- | Not Used |

## Digital Radio Receiver (U2K)




**Connector Part Information**

Harness: Instrument Panel

OEM: 13568238

Service: 13504130

Description: 16-Way F Micro 64 Series Sealed (BK)

**Terminal Part Information**

Pins: 1-5, 9,16

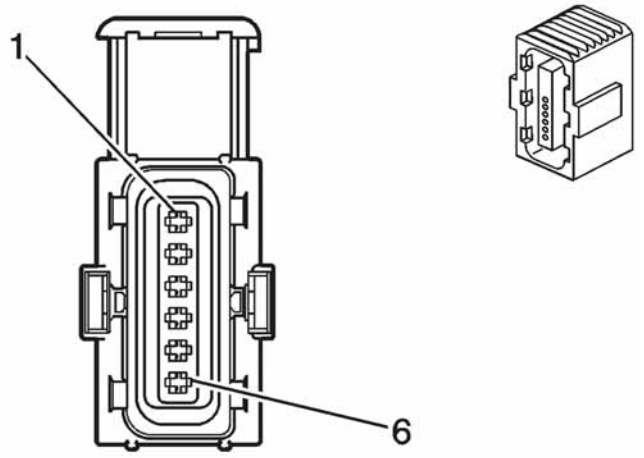
Terminal/Tray: 15359541/4

Core/Insulation Crimp: M/M

Release Tool/Test Probe: J-38125-21/J-35616-64B (L-BU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.35 TN/WH | 372 | Left Audio Signal (-) |
| 2 | 0.35 BN/WH | 367 | Left Audio Signal (+) |
| 3 | 0.35 D-GN/ WH | 368 | Right Audio Signal (+) |
| 4 | 0.35 GY | 388 | Right Audio Signal (-) |
| 5 | 0.5 D-GN | 5060 | Low Speed GMLAN Serial Data |
| 6-8 | -- | -- | Not Used |
| 9 | 0.8 BK/WH | 351 | Ground |
| 10-15 | -- | -- | Not Used |
| 16 | 0.8 RD/WH | 340 | Battery Positive Voltage |

# Accelerator Pedal Position (APP) Sensor

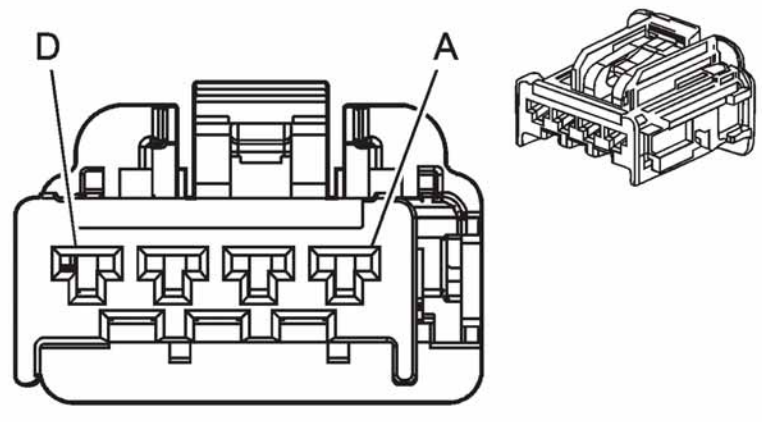



**Connector Part Information**
Harness: Instrument Panel
OEM: 15383136
Service: 89046653
Description: 6-Way F Sealed (BK)

**Terminal Part Information**
Terminal/Tray: 4-969005-1/16
Core/Insulation Crimp: E/1
Release Tool/Test Probe: J-38125-560/J-35616-33 (YE)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| 1 | 0.35 TN | 1274 | 5-Volt Reference |
| 2 | 0.35 WH/BK | 1164 | 5-Volt Reference |
| 3 | 0.35 D-BU | 1161 | Accelerator Pedal Position (APP) Sensor 1 Signal |
| 4 | 0.35 BN | 1271 | Low Reference |
| 5 | 0.35 PU | 1272 | Low Reference |
| 6 | 0.35 L-BU | 1162 | Accelerator Pedal Position (APP) Sensor 2 Signal |

## Stop Lamp Switch




**Connector Part Information**

Harness: Stop Lamp Switch Jumper

OEM: 15466671

Service: 19149301

Description: 4-Way F GT 280 Series (L-GY)

**Terminal Part Information**

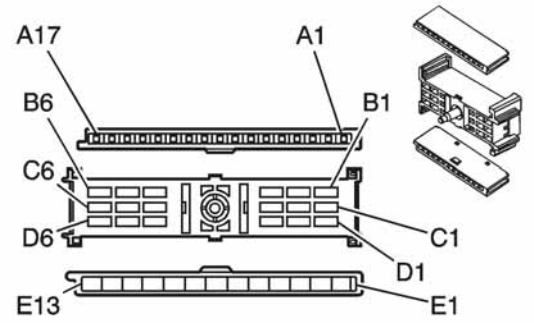
Terminal/Tray: 15304711/8

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire Color | Circuit No. | Function |
|---|---|---|---|
| A | 0.35 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| B | 0.35 PK | 239 | Ignition Voltage |
| C | 0.35 OG/WH | 812 | IP Dimming Voltage Reference |
| D | 0.35 PU | 7062 | Brake Switch Signal |

## X200 Steering Column Harness to Instrument Panel Harness




**Connector Part Information**

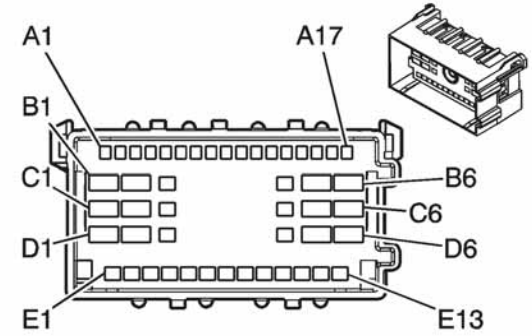
Harness: Steering Column
OEM: 12047842
Service: 12047842
Description: 17-Way F Metri-Pack 150 Series Unsealed (BK)
OEM: 12084183
Service: 12084183
Description: 18-Way F Metri-Pack 280 630 Series Unsealed (BK)
OEM: 12047840
Service: 12047840
Description: 13-Way F Metri-Pack 280 Series Unsealed (GY)

**Terminal Part Information**

Pins: B3, C3, D3-D4, E1, E3-E4, E8-E13
Terminal/Tray: 12034046/2
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 12094430/J-35616-4A (PU)

Pins: A1-A3, A5-A6, A7-A9, A11-A17, B2, B5, C2, C4-C5, D2, E2, E5-E7
Terminal/Tray: 12064971/5
Core/Insulation Crimp: E/C
Release Tool/Test Probe: 12094429/J-35616-14 (GN)

Pins: B1, B6, C1, C6, D1, D5-D6
Terminal/Tray: 12015869/3
Core/Insulation Crimp: E/A
Release Tool/Test Probe: 12094430/J-35616-42 (RD)




**Connector Part Information**

Harness: Instrument Panel
OEM: 15492579
Service: 88988982
Description: 48-Way M Metri-Pack 280 Series (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit
Core/Insulation Crimp: See Terminal Repair Kit
Release Tool/Test Probe: See Terminal Repair Kit

*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 28 | Horn Relay Control |
| A2 | -- | -- | Not Used |
| A3 | 0.35 PK | 1444 | 12-Volt Reference (K34) |
| A4-A5 | -- | -- | Not Used |
| A6 | 0.35 PK | 2239 | Ignition Voltage |
| A7-A8 | -- | -- | Not Used |
| A9 | 0.35 PK | 3 | Ignition Voltage |
| A10 | -- | -- | Not Used |
| A11 | 0.35 L-GN | 6818 | Steering Wheel Control Signal (W1Y) |
| A12 | 0.35 YE | 6046 | Steering Angle Sensor Phase A (JL4) |
| A13 | 0.35 D-GN/ WH | 7158 | Cruise Control Indicator Dimming Signal (K34) |
| A14 | 0.35 D-BU | 6047 | Steering Angle Sensor Phase B (JL4) |
| A15 | 0.35 BN | 6136 | Supply Voltage (K34/W1Y) |
| A16 | 0.35 TN | 6048 | Steering Angle Sensor Phase C (JL4) |
| A17 | 0.35 GY | 1884 | Cruise Control Switch Signal (K34) |
| B1 | 0.35 RD/WH | 540 | Battery Positive Voltage |
| B2 | -- | -- | Not Used |
| B3 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| B4-B5 | -- | -- | Not Used |
| B6 | 0.35 PK | 1020 | Ignition Voltage |
| C1 | 0.35 WH | 530 | Ignition Voltage |
| C2 | -- | -- | Not Used |
| C3 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| C4-C5 | -- | -- | Not Used |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 28 | Horn Relay Control |
| A2 | -- | -- | Not Used |
| A3 | 0.35 PK | 1444 | 12-Volt Reference (K34) |
| A4-A5 | -- | -- | Not Used |
| A6 | 0.35 PK | 2239 | Ignition Voltage |
| A7-A8 | -- | -- | Not Used |
| A9 | 0.35 PK | 3 | Ignition Voltage |
| A10 | -- | -- | Not Used |
| A11 | 0.35 L-GN | 6818 | Steering Wheel Control Signal (W1Y) |
| A12 | 0.5 YE | 6046 | Steering Angle Sensor Phase A (JL4) |
| A13 | 0.35 D-GN/ WH | 7158 | Cruise Control Indicator Dimming Signal (K34) |
| A14 | 0.5 D-BU | 6047 | Steering Angle Sensor Phase B (JL4) |
| A15 | 0.35 BN | 6136 | Supply Voltage (K34/W1Y) |
| A16 | 0.5 TN | 6048 | Steering Angle Sensor Phase C (JL4) |
| A17 | 0.35 GY | 1884 | Cruise Control Switch Signal (K34) |
| B1 | 0.35 RD/WH | 540 | Battery Positive Voltage |
| B2 | -- | -- | Not Used |
| B3 | 0.35 WH | 111 | Theft Deterrent Alarm Enable Signal |
| B4-B5 | -- | -- | Not Used |
| B6 | 0.35 PK | 1020 | Ignition Voltage |
| C1 | 0.35 WH | 530 | Ignition Voltage |
| C2 | -- | -- | Not Used |
| C3 | 0.35 YE | 307 | Headlamp Switch Flash to Pass Signal |
| C4-C5 | -- | -- | Not Used |

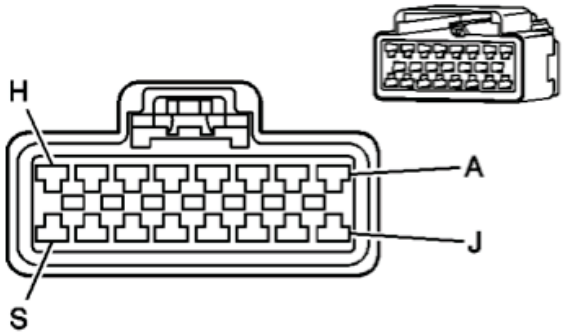
*(continued on next page)*

## X200 Steering Column Harness to Instrument Panel Harness (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| C6 | 0.35 BN | 4 | Ignition Voltage |
| D1 | 0.35 TN/BK | 6009 | Low Reference |
| D2 | -- | -- | Not Used |
| D3 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| D4 | 0.5 TN/WH | 816 | A/T Shift Lock Solenoid Control |
| D5 | 0.35 L-GN | 6043 | Steering Angle Sensor Signal (JL4) |
| D6 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| E1 | 0.5 BK | 350 | Ground |
| E2 | -- | -- | Not Used |
| E3 | 0.5 BK/WH | 351 | Ground |
| E4 | 0.35 OG/BK | 6045 | Low Reference (JL4) |
| E5-E7 | -- | -- | Not Used |
| E8 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| E9 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |
| E10 | 0.35 GY | 6044 | 5-Volt Reference (JL4) |
| E11 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| E12 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| E13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| C6 | 0.35 BN | 4 | Ignition Voltage |
| D1 | 0.35 TN/BK | 6009 | Low Reference |
| D2 | -- | -- | Not Used |
| D3 | 0.35 YE | 525 | Headlamp Dimmer Switch Low Beam Signal |
| D4 | 0.5 TN/WH | 816 | A/T Shift Lock Solenoid Control |
| D5 | 0.5 L-GN | 6043 | Steering Angle Sensor Signal (JL4) |
| D6 | 0.35 PK | 94 | Windshield Washer Switch Signal |
| E1 | 0.5 BK | 350 | Ground |
| E2 | -- | -- | Not Used |
| E3 | 0.5 BK/WH | 351 | Ground |
| E4 | 0.5 OG/BK | 6045 | Low Reference (JL4) |
| E5-E7 | -- | -- | Not Used |
| E8 | 0.35 D-GN | 663 | Hazard Switch Left Turn Signal |
| E9 | 0.35 TN | 664 | Hazard Switch Turn Right Signal |
| E10 | 0.5 GY | 6044 | 5-Volt Reference (JL4) |
| E11 | 0.35 L-BU | 1714 | Windshield Wiper Switch Low Signal |
| E12 | 0.35 L-GN | 1715 | Windshield Wiper Switch High Signal |
| E13 | 0.35 D-GN | 5060 | Low Speed GMLAN Serial Data |

## X205 Front Headliner Harness to Body Harness




**Connector Part Information**

Harness: Front Headliner

OEM: 15326952

Service: 15306426

Description: 16-Way F GT 280 Series (BK)

**Terminal Part Information**

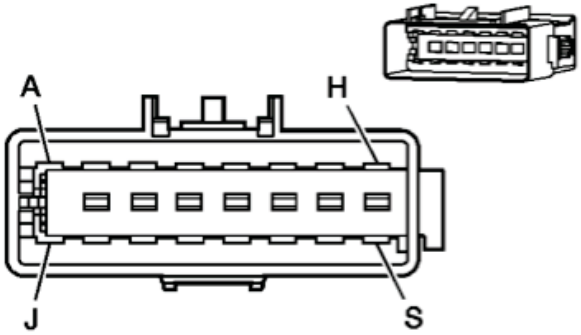
Terminal/Tray: 15304711/8

Core/Insulation Crimp: Pins: B-C, G, S - 2/A

Core/Insulation Crimp: Pins: A, D-F, H-R - E/A

Release Tool/Test Probe: J-38125-553/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.35 BN | 441 | Ignition Voltage (U80) |
| B | 0.8 D-GN | 654 | Low Reference (UE1) |
| C | 0.8 GY | 655 | Celular Telephone Voice Signal (UE1) |
| D | 0.35 GY | 2599 | Auxiliary Mode Door Control (C69) |
| E | 0.5 WH | 1924 | Auxiliary Blower Motor High Control (C69) |
| F | 0.35 BN | 341 | Ignition Voltage (C69) |




**Connector Part Information**

Harness: Body

OEM: 13573920

Service: 15326956

Description: 16-Way M GT 280 Series (BK)

**Terminal Part Information**

Pins: B-C, G, S

Terminal/Tray: 15304724/8

Core/Insulation Crimp: 2/A

Release Tool/Test Probe: J-38125-553/J-35616-5 (PU)

Pins: A, D-F, H-R

Terminal/Tray: 15304722/8

Core/Insulation Crimp: E/C

Release Tool/Test Probe: J-38125-553/J-35616-5 (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.35 BN | 441 | Ignition Voltage (U80) |
| B | 0.8 D-GN | 654 | Low Reference (UE1) |
| C | 0.8 GY | 655 | Celular Telephone Voice Signal (UE1) |
| D | 0.35 GY | 2599 | Auxiliary Mode Door Control (C69) |
| E | 0.35 WH | 1924 | Auxiliary Blower Motor High Control (C69) |
| F | 0.35 BN | 341 | Ignition Voltage (C69) |

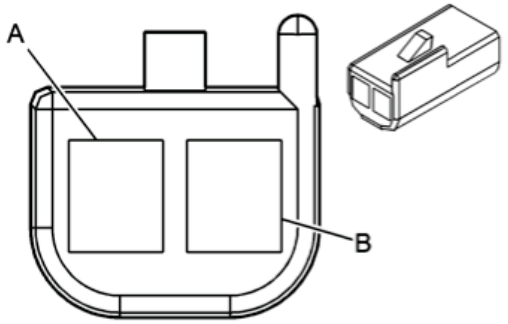
*(continued on next page)*

## X205 Front Headliner Harness to Body Harness (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| G | 1 BK | 1850 | Ground (C69 or DH6) |
| | 0.8 BK | 1850 | Ground (without C69, DH6 or YF1) |
| H | 0.5 D-BU/WH | 149 | Courtesy Lamp Control |
| J | 0.35 BK/WH | 351 | Ground (U80) |
| K | 0.5 BN | 5263 | Rear Auxiliary Air Temperature Door Control (Passenger with C69) |
| L | 0.35 D-GN | 6134 | Local Interconnect Network 3 (U80) |
| M | 0.35 OG | 2775 | Auxiliary Air Temperature Door Control (C69) |
| N | 0.5 OG | 1925 | Auxiliary Blower Motor Medium Control (C69) |
| P | 0.5 D-BU | 1926 | Auxiliary Blower Motor Low Control (C69) |
| R | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (C69) |
| S | 0.8 OG | 1732 | Courtesy Lamp Control (without YF7) |
| | 0.5 OG | 1732 | Courtesy Lamp Control (YF7 or DH6) |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| G | 1 BK | 1850 | Ground |
| H | 0.5 D-BU/WH | 149 | Courtesy Lamp Control |
| J | 0.35 BK/WH | 351 | Ground (U80) |
| K | 0.5 BN | 5263 | Rear Auxiliary Air Temperature Door Control (Passenger with C69) |
| L | 0.35 D-GN | 6134 | Local Interconnect Network 3 (U80) |
| M | 0.35 OG | 2775 | Auxiliary Air Temperature Door Control (C69) |
| N | 0.35 OG | 1925 | Auxiliary Blower Motor Medium Control (C69) |
| P | 0.35 D-BU | 1926 | Auxiliary Blower Motor Low Control (C69) |
| R | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (C69) |
| S | 0.8 OG | 1732 | Courtesy Lamp Control |

## X206 Body Harness to Front Headliner Harness (Passenger with C69)




**Connector Part Information**

Harness: Body

OEM: 12047662

Service: 12085535

Description: 2-Way F Metri-Pack 150 Series (BK)

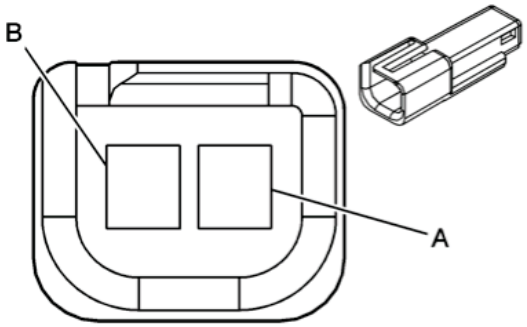
**Terminal Part Information**

Terminal/Tray: 15326030/5

Core/Insulation Crimp: E/C

Release Tool/Test Probe: J-38125-12A/J-35616-14 (GN)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.5 PU/WH | 5265 | Rear Auxiliary Mode Door Control |
| B | 0.5 PK/BK | 5264 | Rear Auxiliary Blower Motor Switch Control |




**Connector Part Information**

Harness: Front Headliner

OEM: 12047663

Service: 12085481

Description: 2-Way M Metri-Pack 150 Series (BK)

**Terminal Part Information**

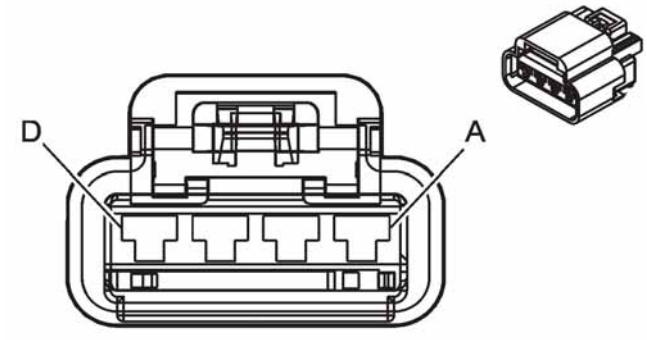
Terminal/Tray: 12047581/2

Core/Insulation Crimp: E/C

Release Tool/Test Probe: J-38125-12A/J-35616-3 (GY)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.5 PU/WH | 5265 | Rear Auxiliary Mode Door Control |
| B | 0.5 PK/BK | 5264 | Rear Auxiliary Blower Motor Switch Control |

## X221 Stop Lamp Switch Jumper to Instrument Panel Harness




**Connector Part Information**

Harness: Stop Lamp Switch Jumper

OEM: 15326886

Service: 88988300

Description: 4-Way F GT 280 Series (BK)

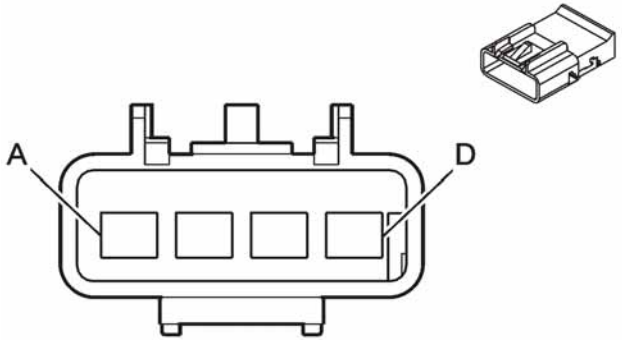
**Terminal Part Information**

Terminal/Tray: 15304711/8

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.35 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| B | 0.35 PK | 239 | Ignition Voltage |
| C | 0.35 OG/WH | 812 | 12-Volt Reference |
| D | 0.35 PU | 7062 | Brake Switch Signal |




**Connector Part Information**

Harness: Instrument Panel

OEM: 15326890

Service: 88953361

Description: 4-Way M GT 280 Series (BK)

**Terminal Part Information**

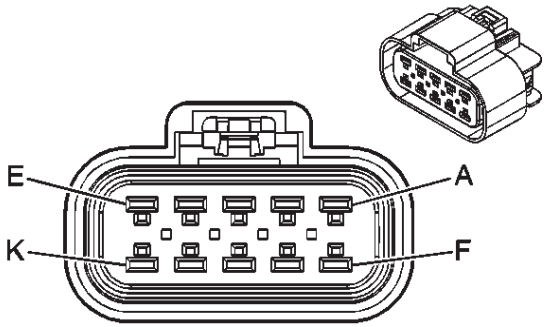
Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A | 0.35 L-BU/WH | 6311 | Torque Converter Clutch (TCC) Brake Signal |
| B | 0.35 PK | 239 | Ignition Voltage |
| C | 0.35 OG/WH | 812 | 12-Volt Reference |
| | 0.35 OG/WH | 812 | 12-Volt Reference |
| D | 0.35 PU | 7062 | Brake Switch Signal |

# X405 Cutaway Rear Lighting Connector to Chassis Harness (Cutaway)




**Connector Part Information**

Harness: Cutaway Rear Lighting Connector

OEM: 15326660

Service: 88986262

Description: 10-Way F GT 280 5.8 Series Sealed (BK)

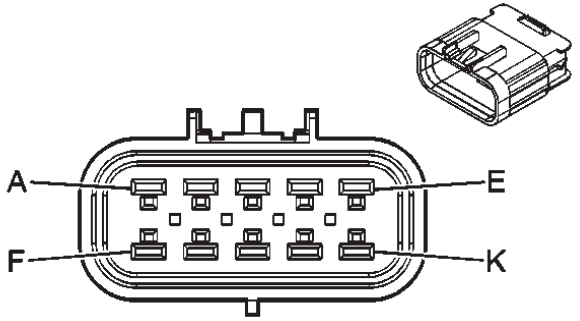
**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 WH | 17 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |




**Connector Part Information**

Harness: Chassis

OEM: 15326661

Service: 88986245

Description: 10-Way M GT 280 5.8 Series Sealed (BK)

**Terminal Part Information**

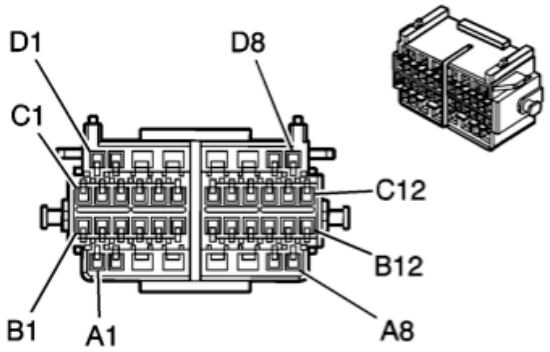
Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A-B | -- | -- | Not Used |
| C | 1 L-BU | 1320 | Center High Mounted Stop Lamp (CHMSL) Control |
| D | 1 YE | 618 | Left Rear Turn Signal Lamp Control |
| E | 1 D-GN | 619 | Right Rear Turn Signal Lamp Control |
| F | 1 BN | 2109 | Trailer Park Lamps Control |
| G | 1 BK | 150 | Ground |
| H | 1 L-GN | 1624 | Trailer Backup Lamps Control |
| J | -- | -- | Not Used |
| K | 0.8 D-BU/WH | 149 | Courtesy Lamp Control |

## X500 Driver Door Harness to Body Harness




**Connector Part Information**

Harness: Driver Door

OEM: 15448129

Service: 89046969

Description: 40-Way F GT 150 280 Series (BK)

**Terminal Part Information**

Pins: A1, A7-A8, B1-B4, B7-B8, B12, C1-C2, C7-C8, C12, D7-D8

Terminal/Tray: 12191812/19

Core/Insulation Crimp: Pins: A7, B7-B8, B12, C12 : C/A

Core/Insulation Crimp: Pins: A1, A8, B1-B4, C1-C2, C7-C8, D7-D8 : E/C

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: A5-A6

Terminal/Tray: 15304711/8

Core/Insulation Crimp: E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

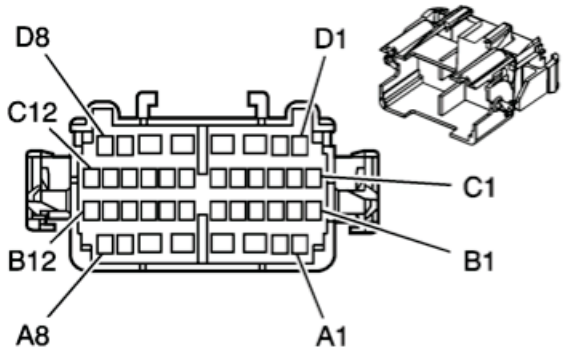
Pins: A5, D4-D6

Terminal/Tray: 15304713/19

Core/Insulation Crimp: F/D

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 126 | Left Front Door Open Switch Signal |
| A2-A4 | -- | -- | Not Used |




**Connector Part Information**

Harness: Body

OEM: 15475869

Service: 88988307

Description: 40-Way M GT 150 280 Series (BK)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.35 TN | 126 | Left Front Door Open Switch Signal |
| A2-A4 | -- | -- | Not Used |

*(continued on next page)*

## X500 Driver Door Harness to Body Harness (cont'd)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A5 | 0.35 BK | 450 | Ground (AU3 without DE5, DE7 or A31) |
| | 3 BK | 450 | Ground (AU3 with DE5, DE7 or A31) |
| A6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3) |
| | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (A31) |
| A7 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A8 | 0.35 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |
| B1 | 0.35 OG/BK | 781 | Driver Door Lock Switch Unlock Signal (AU3) |
| B2 | 0.35 PK/BK | 780 | Driver Door Lock Switch Lock Signal (AU3) |
| B3 | 0.35 GY/BK | 745 | Left Front Door Ajar Switch Signal |
| B4 | 0.35 BK | 450 | Ground |
| B5-B6 | -- | -- | Not Used |
| B7 | 0.8 TN | 694 | Driver Door Lock Actuator Unlock Control (AU3) |
| B8 | 0.8 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| B9-B11 | -- | -- | Not Used |
| B12 | 0.8 D-BU | 1857 | Left Front Midrange Speaker Output (+) |
| C1 | 0.5 PU/WH | 6628 | Low Reference (ASF) |
| C2 | 0.5 WH | 2132 | Side Impact Sensing Module - Left - Signal (ASF) |
| C3-C6 | -- | -- | Not Used |
| C7 | 0.5 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control (DE5 or DE7) |

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A5 | 3 BK | 450 | Ground |
| A6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3 or A31) |
| A7 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A8 | 0.5 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |
| B1 | 0.35 OG/BK | 781 | Driver Door Lock Switch Unlock Signal (AU3) |
| B2 | 0.35 PK/BK | 780 | Driver Door Lock Switch Lock Signal (AU3) |
| B3 | 0.35 GY/BK | 745 | Left Front Door Ajar Switch Signal |
| B4 | 0.35 BK | 450 | Ground |
| B5-B6 | -- | -- | Not Used |
| B7 | 0.8 TN | 694 | Driver Door Lock Actuator Unlock Control (AU3) |
| B8 | 1 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| B9-B11 | -- | -- | Not Used |
| B12 | 0.8 D-BU | 1857 | Left Front Midrange Speaker Output (+) |
| C1 | 0.5 PU/WH | 6628 | Low Reference (ASF) |
| C2 | 0.5 WH | 2132 | Side Impact Sensing Module - Left - Signal (ASF) |
| C3-C6 | -- | -- | Not Used |
| C7 | 0.5 L-BU/WH | 1314 | Left Front Turn Signal Lamp Control (DE5 or DE7) |

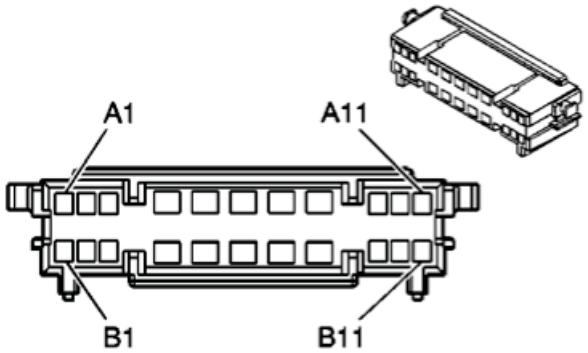
*(continued on next page)*

## X500 Driver Door Harness to Body Harness (cont'd)

| | | | |
|---|---|---|---|
| C8 | 0.5 RD/WH | 4340 | Battery Positive Voltage (DE5 or DE7) |
| C9-C11 | -- | -- | Not Used |
| C12 | 0.8 L-BU | 1957 | Left Front Midrange Speaker Output (-) |
| D1-D3 | -- | -- | Not Used |
| D4 | 3 TN | 167 | Power Window Master Switch Right Front Down Signal (A31) |
| D5 | 3 L-BU | 166 | Power Window Master Switch Right Front Up Signal (A31) |
| D6 | 3 D-GN | 1001 | RAP Control (A31) |
| D7 | 0.35 BN/WH | 1498 | Passenger Mirror Motor Left/ Down Control (DE5 or DE7) |
| D8 | 0.35 OG/WH | 881 | Passenger Mirror Motor Right Control (DE5 or DE7) |

| | | | |
|---|---|---|---|
| C8 | 0.5 RD/WH | 4340 | Battery Positive Voltage (DE5 or DE7) |
| C9-C11 | -- | -- | Not Used |
| C12 | 0.8 L-BU | 1957 | Left Front Midrange Speaker Output (-) |
| D1-D3 | -- | -- | Not Used |
| D4 | 3 TN | 167 | Power Window Master Switch Right Front Down Signal (A31) |
| D5 | 3 L-BU | 166 | Power Window Master Switch Right Front Up Signal (A31) |
| D6 | 3 D-GN | 1001 | RAP Control (A31) |
| D7 | 0.5 BN/WH | 1498 | Passenger Mirror Motor Left/ Down Control (DE5 or DE7) |
| D8 | 0.5 OG/WH | 881 | Passenger Mirror Motor Right Control (DE5 or DE7) |

## X600 Passenger Door Harness to Body Harness




**Connector Part Information**

Harness: Passenger Door

OEM: 15326063

Service: 15326063

Description: 22-Way F GT 150, 280 (GY)

**Terminal Part Information**

Pins: A1-A3, A9-A11, B1-B3, B10-B11

Terminal/Tray: 12191812/19

Core/Insulation Crimp: Pins: A1-A3, B1-B2 : C/A

Core/Insulation Crimp: Pins: B3, B10-B11, A9-A11 : E/C

Release Tool/Test Probe: 15315247/J-35616-2A (GY)

Pins: A5-A8, B6-B8

Terminal/Tray: 15304711/8

Core/Insulation Crimp: Pins: A5 : 2/A

Core/Insulation Crimp: Pins: A5-A8, B6-B8 : E/A

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

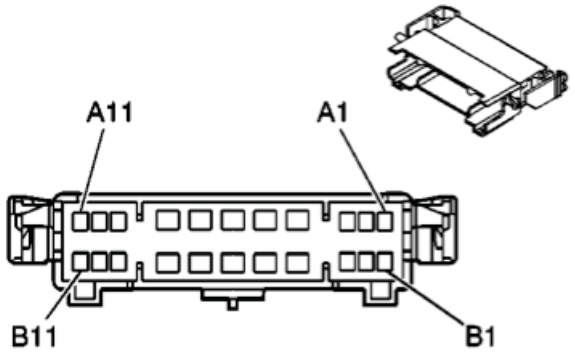
Pins: A4, B4-B5

Terminal/Tray: 15304713/19

Core/Insulation Crimp: F/D

Release Tool/Test Probe: 15315247/J-35616-4A (PU)

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.8 OG | 1853 | Right Front Midrange Speaker Output (+) |




**Connector Part Information**

Harness: Body

OEM: 15326064

Service: Pending

Description: 22-Way M GT 150, 280 (GY)

**Terminal Part Information**

Terminal/Tray: See Terminal Repair Kit

Core/Insulation Crimp: See Terminal Repair Kit

Release Tool/Test Probe: See Terminal Repair Kit

| Pin | Wire | Circuit | Function |
|---|---|---|---|
| A1 | 0.8 OG | 1853 | Right Front Midrange Speaker Output (+) |



*(continued on next page)*

## X600 Passenger Door Harness to Body Harness (cont'd)

| | | | |
|---|---|---|---|
| A2 | 0.8 TN | 294 | Door Lock Actuator Unlock Control (AU3) |
| A3 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A4 | 3 L-BU | 166 | Power Window Master Switch Right Front Up Signal (A31) |
| A5 | 0.8 BK | 1850 | Ground |
| A6 | 0.35 BN/WH | 1498 | Passenger Mirror Motor Left/ Down Control (DE5 or DE7) |
| | 0.35 BN/WH | 1498 | Passenger Mirror Motor Left/ Down Control (DE5 or DE7) |
| A7 | 0.35 OG/WH | 881 | Passenger Mirror Motor Right Control (DE5 or DE7) |
| A8 | 0.35 TN/WH | 746 | Right Front Door Ajar Switch Signal |
| A9 | 0.35 BK | 1850 | Ground |
| A10 | 0.5 D-GN | 2134 | Side Impact Sensing Module - Right - Signal |
| A11 | 0.35 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| B1 | 0.8 D-GN | 1953 | Right Front Midrange Speaker Output (-) |
| B2 | 0.8 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| B3 | 0.5 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control (DE5 or DE7) |
| B4 | 3 TN | 167 | Power Window Master Switch Right Front Down Signal (A31) |
| B5 | 3 D-GN | 1001 | RAP Control (A31) |
| B6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3) |
| | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (A31) |
| B7 | 0.35 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |

| | | | |
|---|---|---|---|
| A2 | 0.8 TN | 294 | Door Lock Actuator Unlock Control (AU3) |
| A3 | 0.8 OG | 2267 | Mirror Heating Element Control (DE5 or DE7) |
| A4 | 3 L-BU | 166 | Power Window Master Switch Right Front Up Signal (A31) |
| A5 | 0.8 BK | 1850 | Ground |
| A6 | 0.5 BN/WH | 1498 | Passenger Mirror Motor Left/ Down Control (DE5 or DE7) |
| A7 | 0.5 OG/WH | 881 | Passenger Mirror Motor Right Control (DE5 or DE7) |
| A8 | 0.35 TN/WH | 746 | Right Front Door Ajar Switch Signal |
| A9 | 0.35 BK | 1850 | Ground |
| A10 | 0.5 D-GN | 2134 | Side Impact Sensing Module - Right -- Signal |
| A11 | 0.35 L-BU | 244 | Passenger Door Lock Switch Lock Control (AU3) |
| B1 | 0.8 D-GN | 1953 | Right Front Midrange Speaker Output (-) |
| B2 | 1 GY | 295 | Door Lock Actuator Lock Control (AU3) |
| B3 | 0.5 D-BU/WH | 1315 | Right Front Turn Signal Lamp Control (DE5 or DE7) |
| B4 | 3 TN | 167 | Power Window Master Switch Right Front Down Signal (A31) |
| B5 | 3 D-GN | 1001 | RAP Control (A31) |
| B6 | 0.35 BN/WH | 230 | Instrument Panel Lamps Dimming Control (AU3 or A31) |
| B7 | 0.5 PU/WH | 889 | Passenger Mirror Motor Down Control (DE5 or DE7) |

*(continued on next page)*

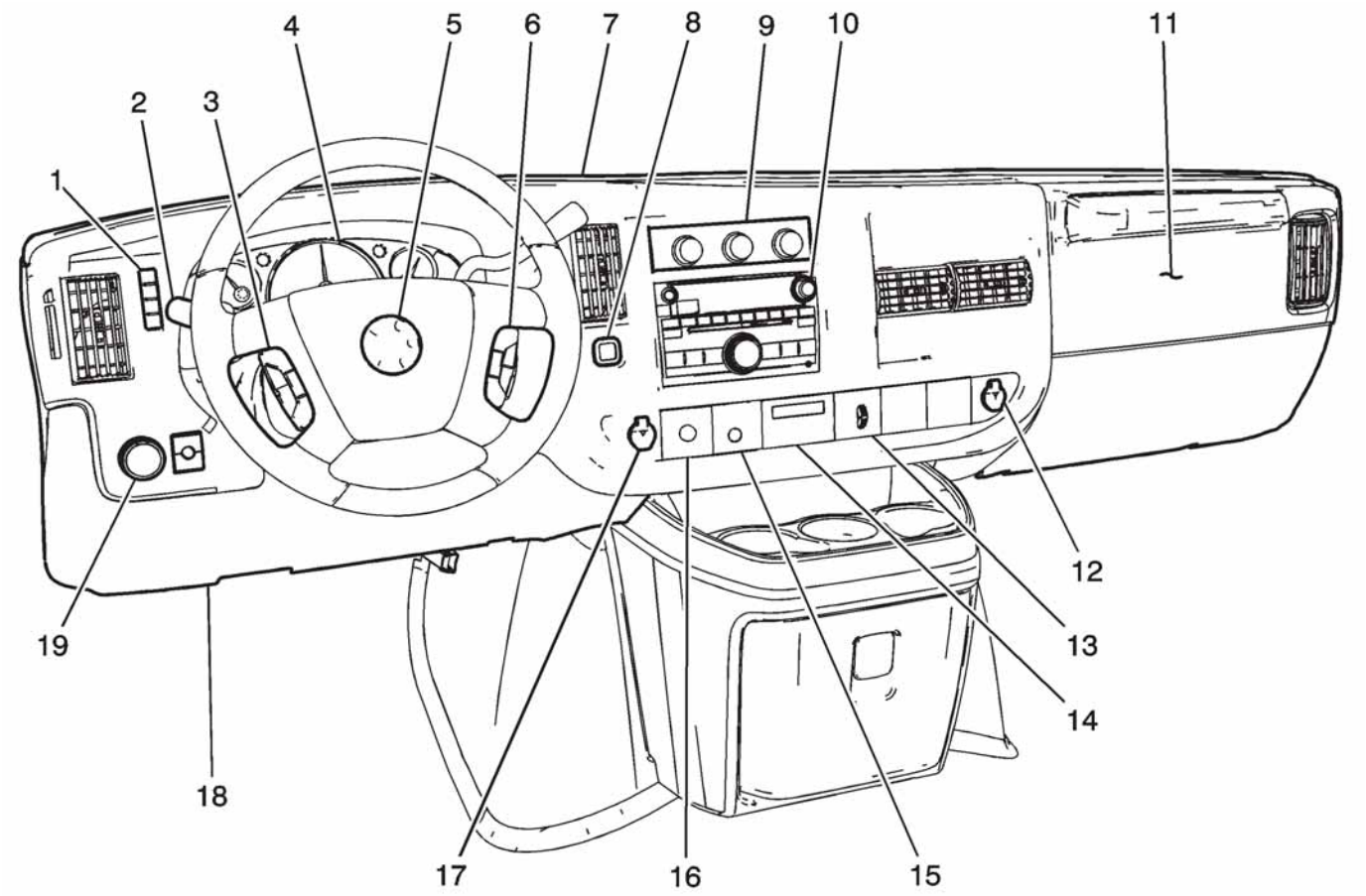
## X600 Passenger Door Harness to Body Harness (cont'd)

| | | | |
|---|---|---|---|
| B8 | 0.35 L-GN | 1177 | Right Front Door Open Switch Signal |
| B9 | -- | -- | Not Used |
| B10 | 0.5 WH/BK | 6629 | Low Reference (ASF) |
| B11 | 0.35 D-BU | 245 | Passenger Door Lock Switch Unlock Control (AU3) |



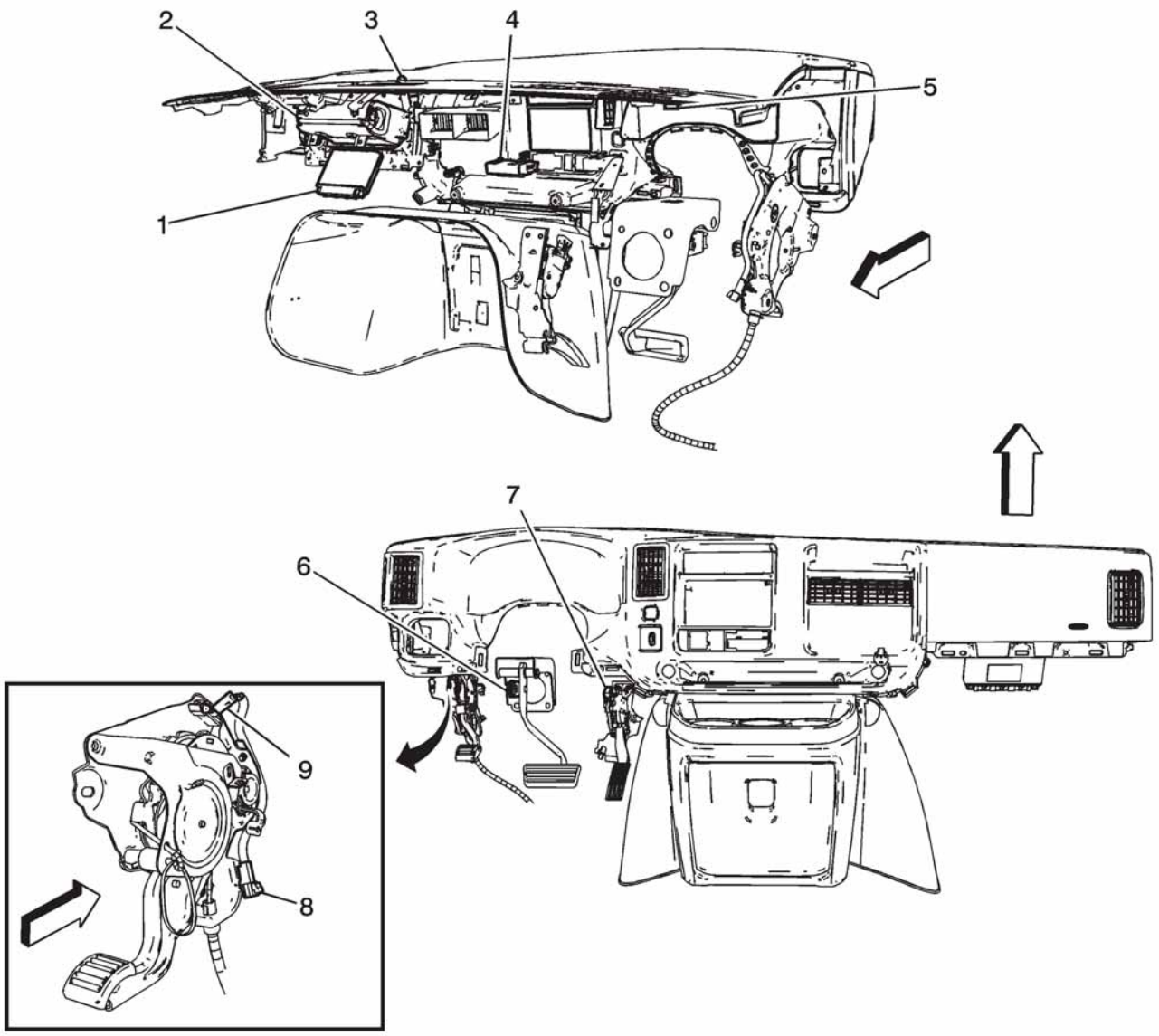
| | | | |
|---|---|---|---|
| B8 | 0.35 L-GN | 1177 | Right Front Door Open Switch Signal |
| B9 | -- | -- | Not Used |
| B10 | 0.5 WH/BK | 6629 | Low Reference (ASF) |
| B11 | 0.35 D-BU | 245 | Passenger Door Lock Switch Unlock Control (AU3) |

## Instrument Panel Components




(1) Driver Information Center (DIC) Switch
(2) Turn Signal/Multifunction Switch
(3) Steering Wheel Control Switch - Left (K34)
(4) Instrument Panel Cluster (IPC)
(5) Inflatable Restraint Steering Wheel Module
(6) Steering Wheel Control Switch - Right (W1Y)
(7) Instrument Panel
(8) Tow/Haul Switch
(9) HVAC Control Assembly
(10) Radio
(11) Inflatable Restraint I/P Module
(12) Accessory Power Outlet - Center Console 2
(13) Blower Motor Switch - Auxiliary (C36 without C69)
(14) Inflatable Restraint I/P Module Indicator (Light Duty without YF7)
(15) Inflatable Restraint I/P Module Disable Switch (C99)
(16) Traction Control Switch (TCS) (JL4)
(17) Cigar Lighter (DT4)/Accessory Power Outlet - Center Console 1 (without DT4)
(18) Data Link Connector (DLC)
(19) Headlamp and Panel Dimmer Switch

## Instrument Panel Harness Components




(1) Body Control Module (BCM)

(2) Inflatable Restraint I/P Module

(3) Ambient Light Sensor

(4) Chime Module (UL5)

(5) Remote Control Door Lock Receiver (RCDLR) (AU0)

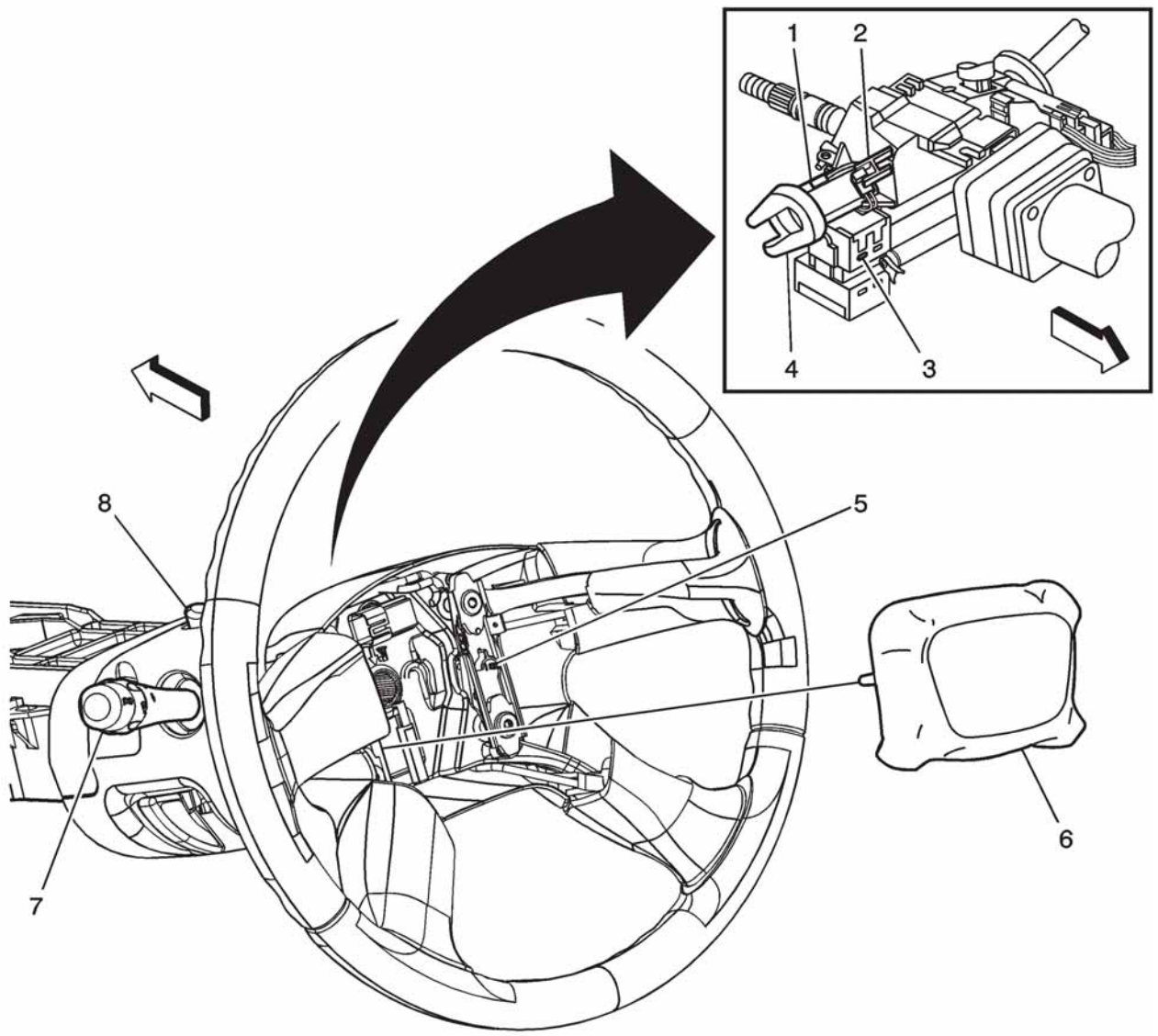
(6) Stop Lamp Switch

(7) Accelerator Pedal Position (APP) Sensor

(8) Park Brake Switch Pigtail Connector

(9) Park Brake Switch

## Upper Steering Column




(1) Theft Deterrent Module (TDM)

(2) Ignition Key Alarm Switch

(3) Ignition Switch

(4) Ignition Key Cylinder

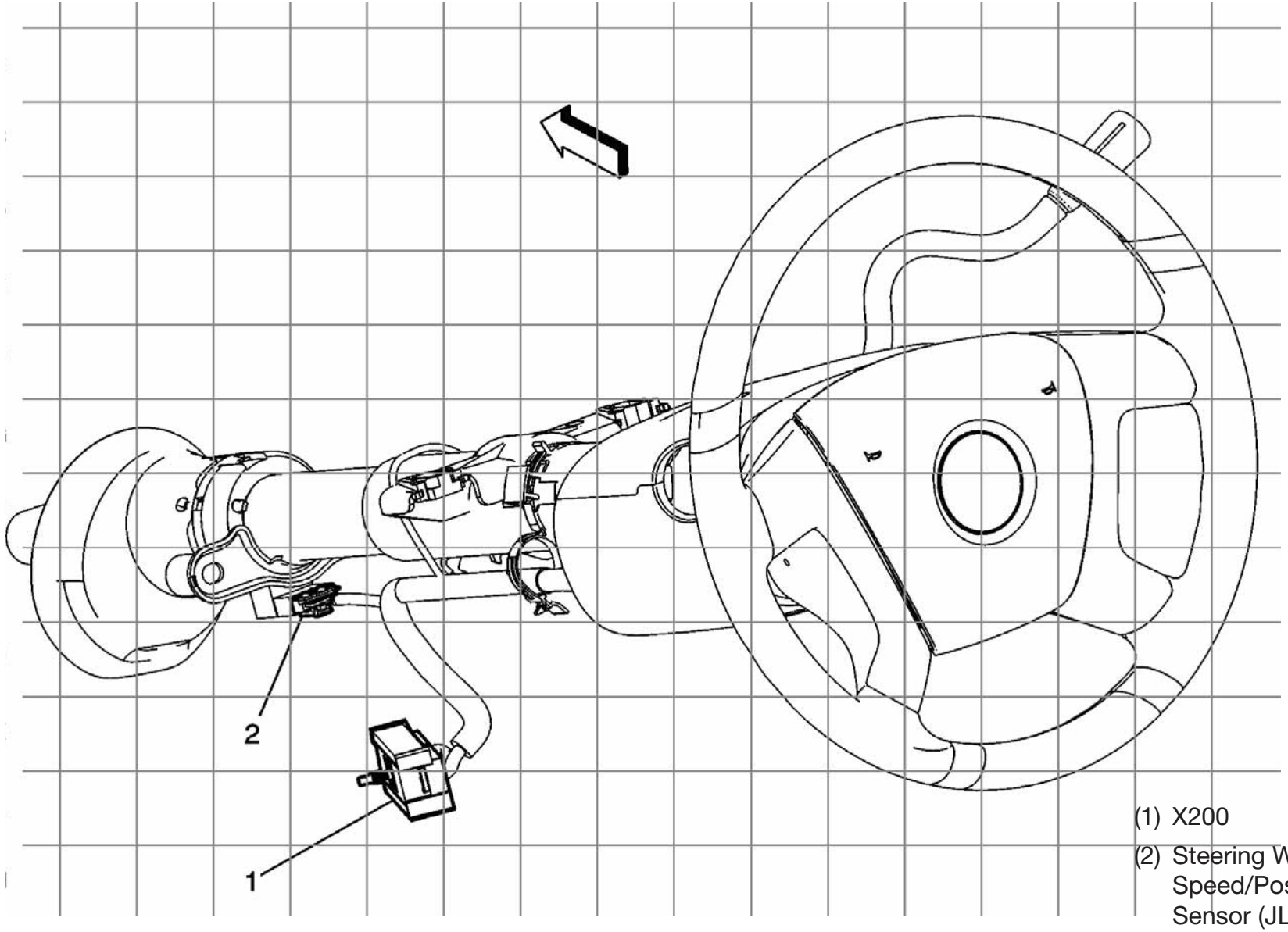
(5) Horn Switch

(6) Inflatable Restraint Steering Wheel Module

(7) Turn Signal/Multifunction Switch

(8) Hazard Warning Switch

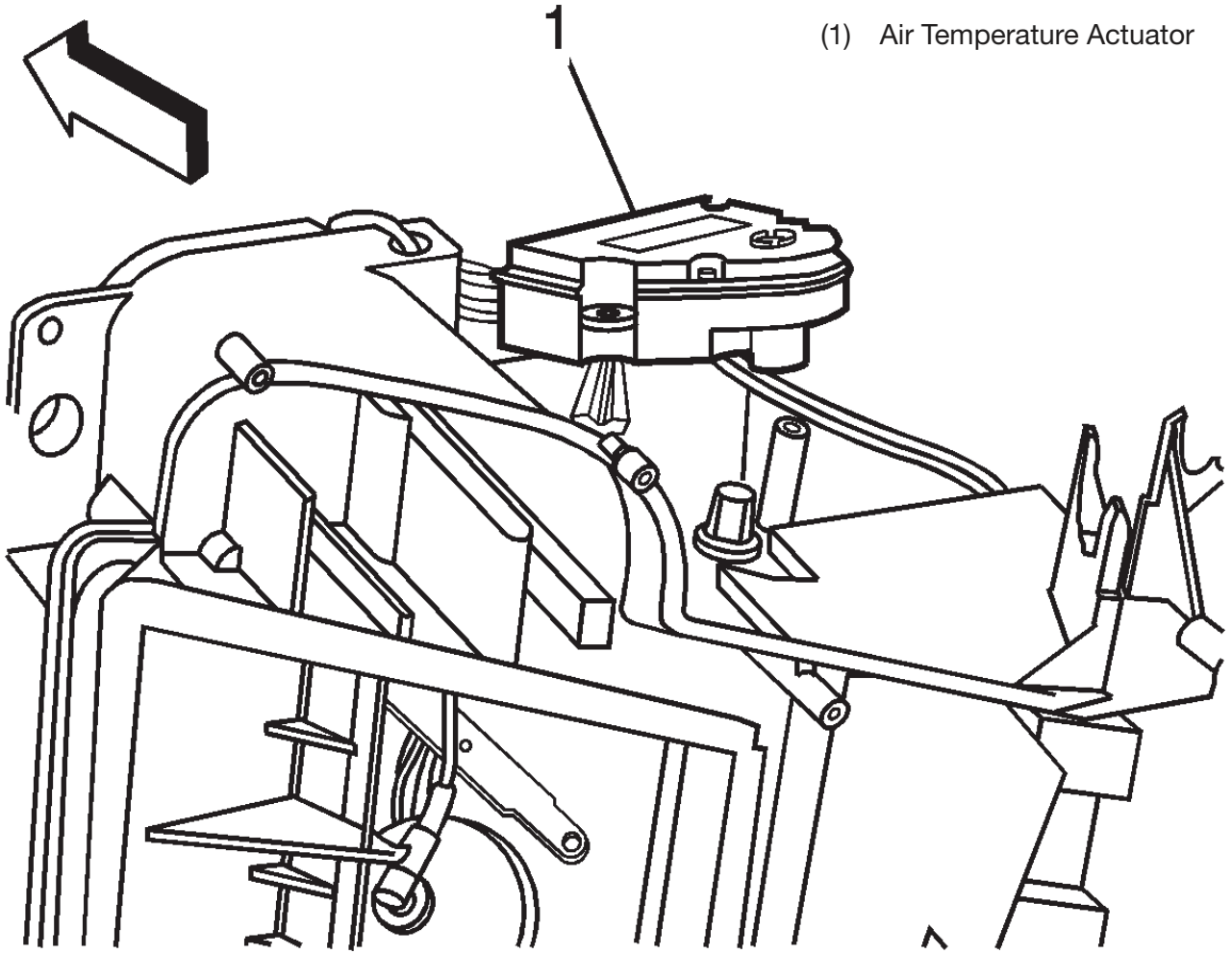
## Steering Column




(1) X200

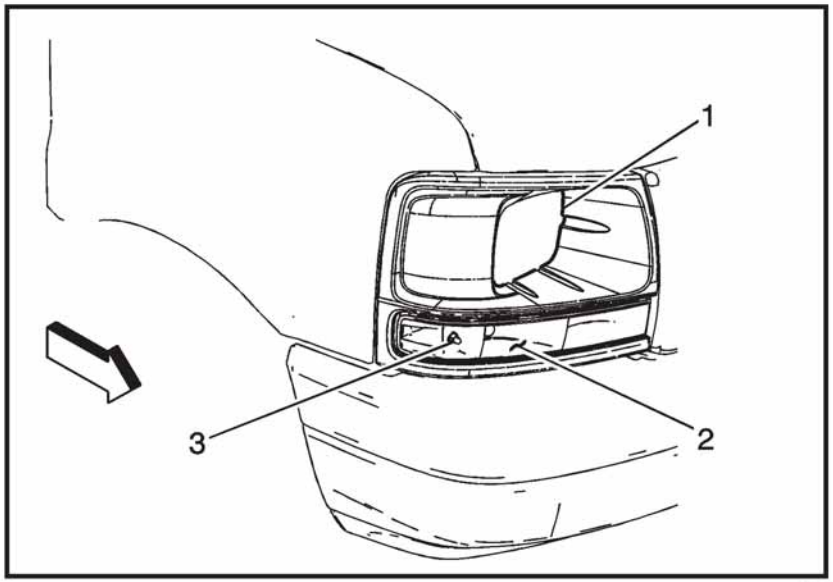
(2) Steering Wheel Speed/Position Sensor (JL4)

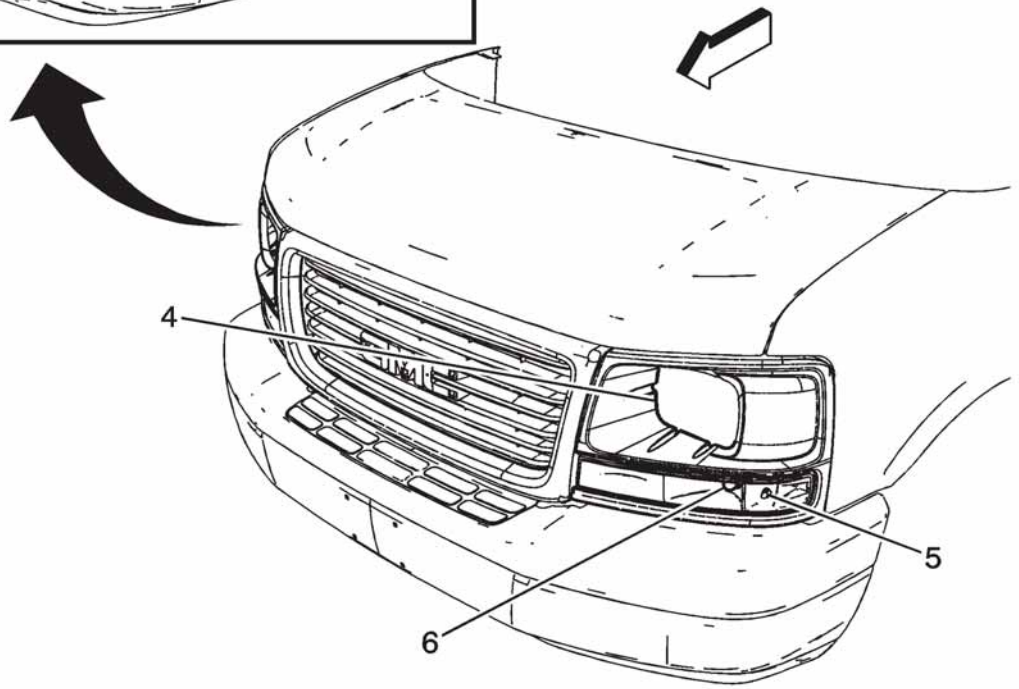
## Air Temperature Actuator




(1) Air Temperature Actuator

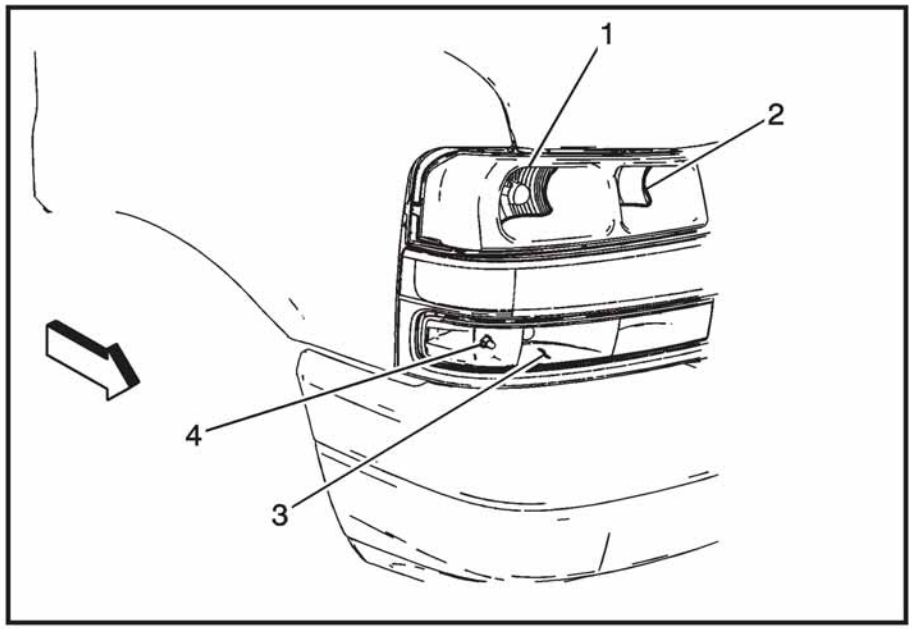
## Front Exterior Lighting (Base)

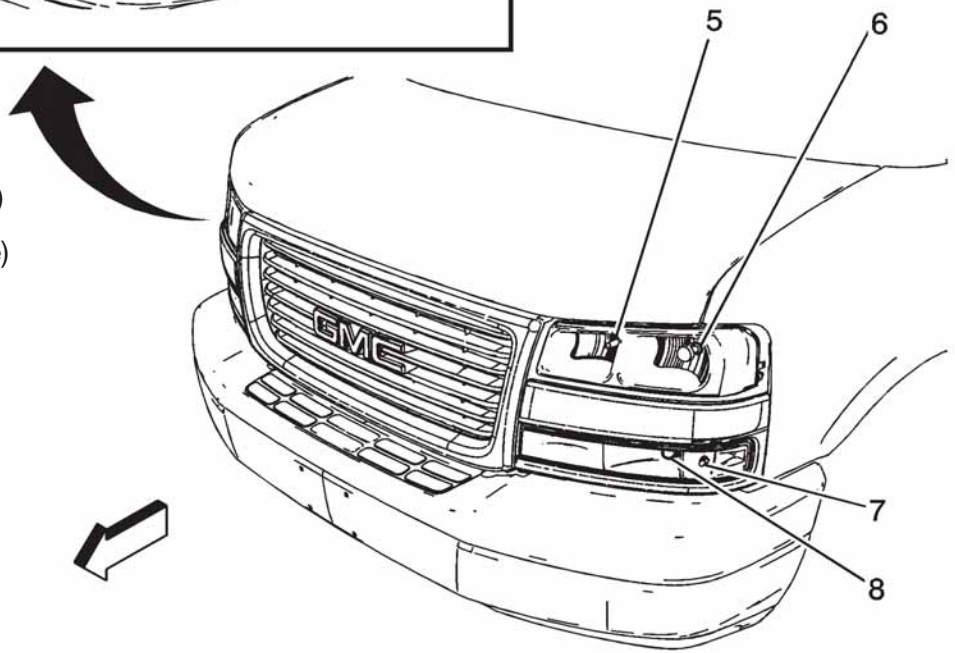



(1) Headlamp - Right (Sealed)
(2) Park/Turn Signal Lamp - Right Front
(3) Marker Lamp - Right Front
(4) Headlamp - Left (Sealed)
(5) Marker Lamp - Left Front
(6) Park/Turn Signal Lamp - Left Front

## Front Exterior Lighting (Uplevel)




(1) Headlamp - Right Low Beam (Composite)

(2) Headlamp - Right High Beam (Composite)

(3) Park/Turn Signal Lamp - Right Front

(4) Marker Lamp - Right Front

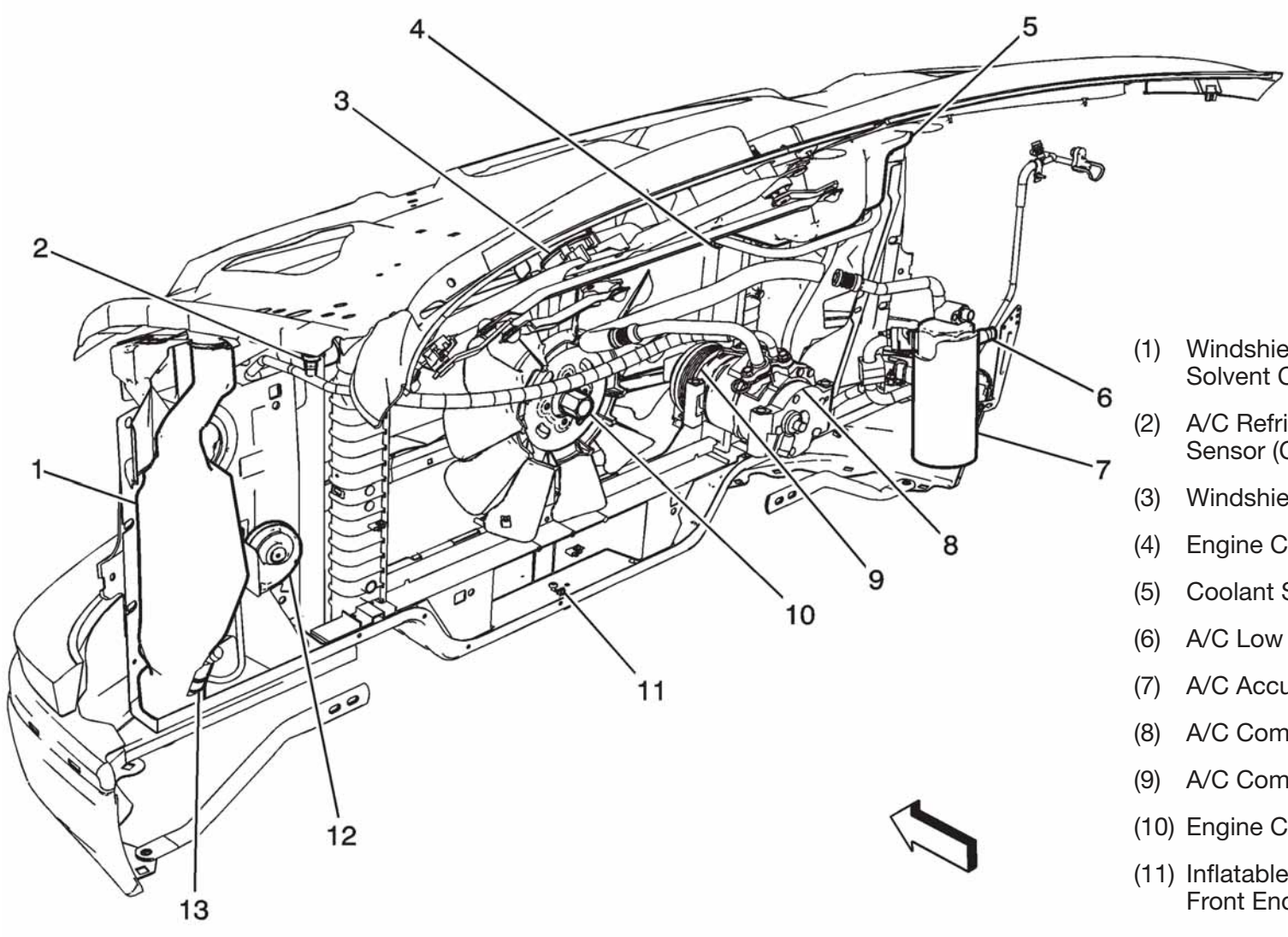
(5) Headlamp - Left High Beam (Composite)

(6) Headlamp - Left Low Beam (Composite)

(7) Marker Lamp - Left Front

(8) Park/Turn Signal Lamp - Left Front

## Front of Engine Compartment




(1) Windshield Washer Solvent Container

(2) A/C Refrigerent Pressure Sensor (C60)

(3) Windshield Wiper Motor

(4) Engine Coolant Level Switch (LMM)

(5) Coolant Surge Tank

(6) A/C Low Pressure Switch (C60)

(7) A/C Accumulator (C60)

(8) A/C Compressor (C60)

(9) A/C Compressor Clutch (C60)

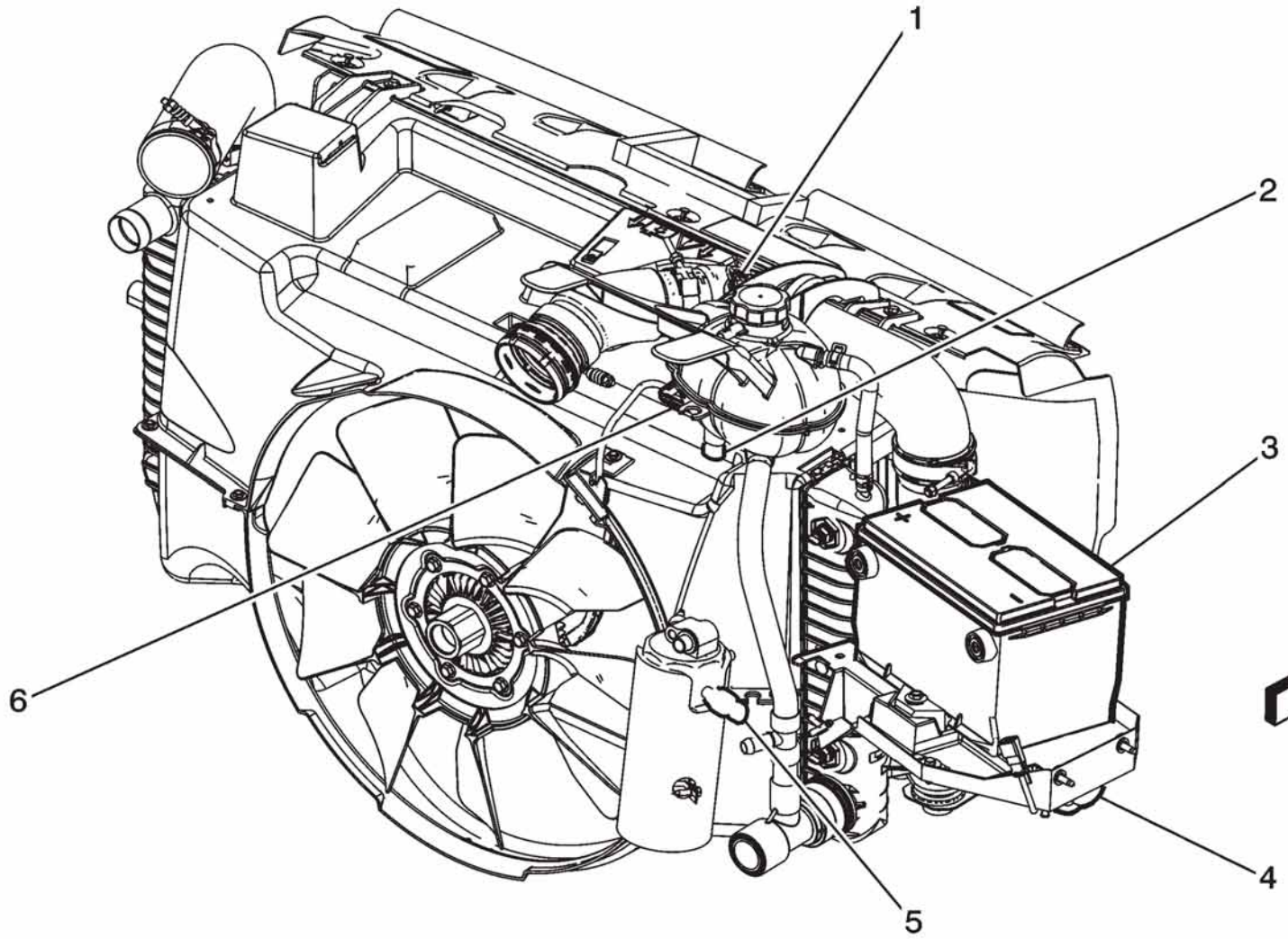
(10) Engine Cooling Fan Clutch

(11) Inflatable Restraint Front End Sensor

(12) Horn Assembly

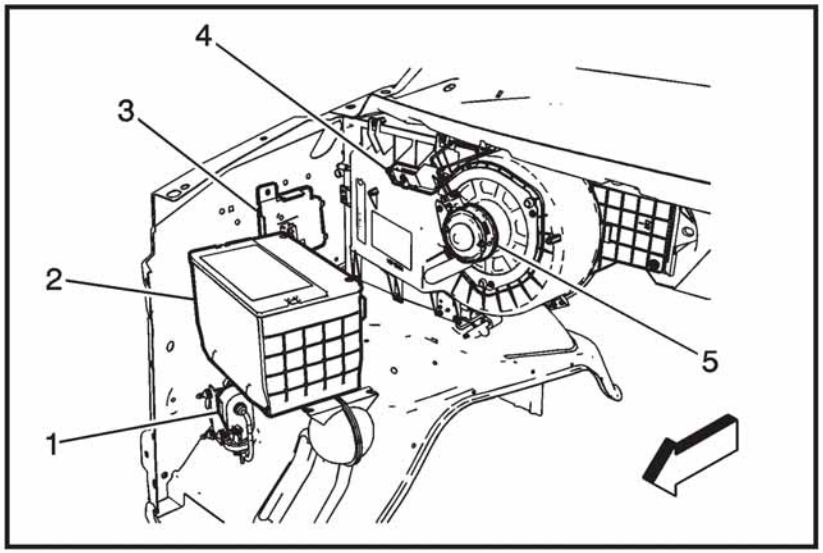
(13) Windshield Washer Fluid Pump

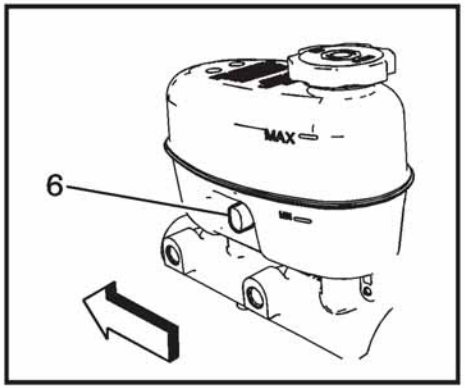
## Front of Engine Compartment Components (LGH)

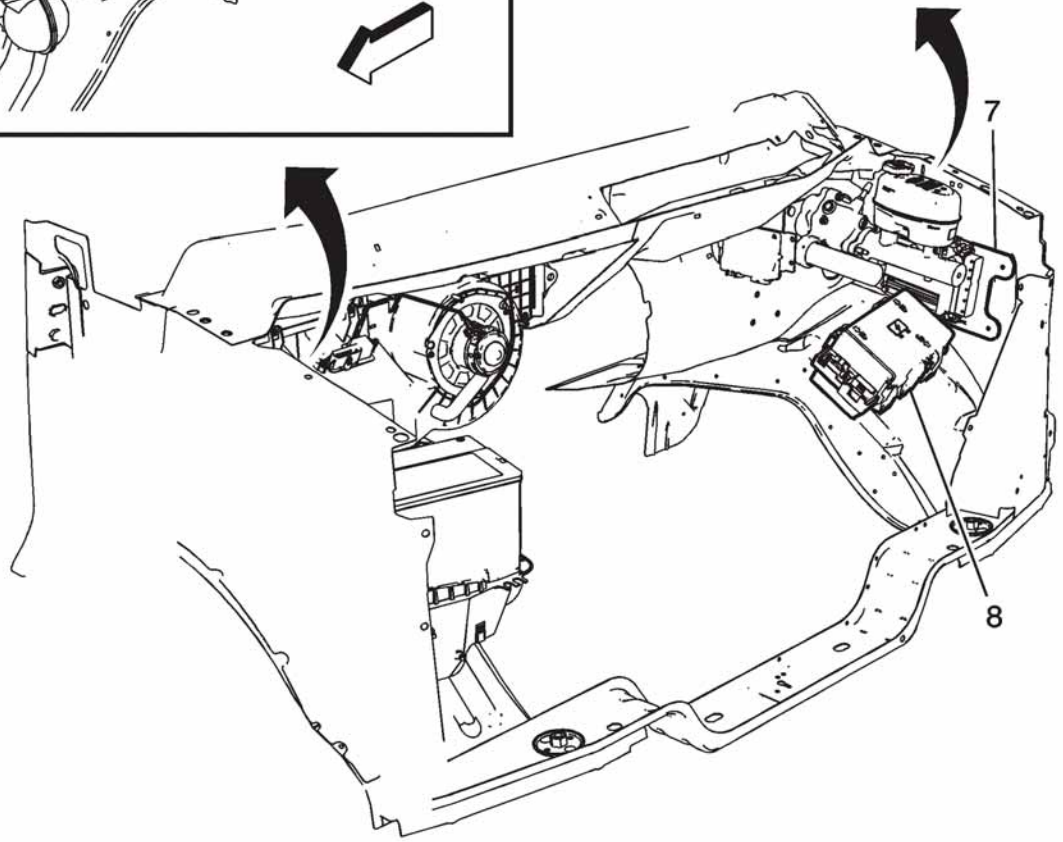



(1) Charge Air Cooler Outlet Temperature Sensor
(2) Engine Coolant Level Switch
(3) Battery
(4) Vacuum Pump
(5) A/C Low Pressure Switch (C60)
(6) X142

## Engine Compartment




(1) Vacuum Pump (LMM or LGH)

(2) Battery

(3) Transmission Control Module (TCM)

(4) Blower Motor Resistor

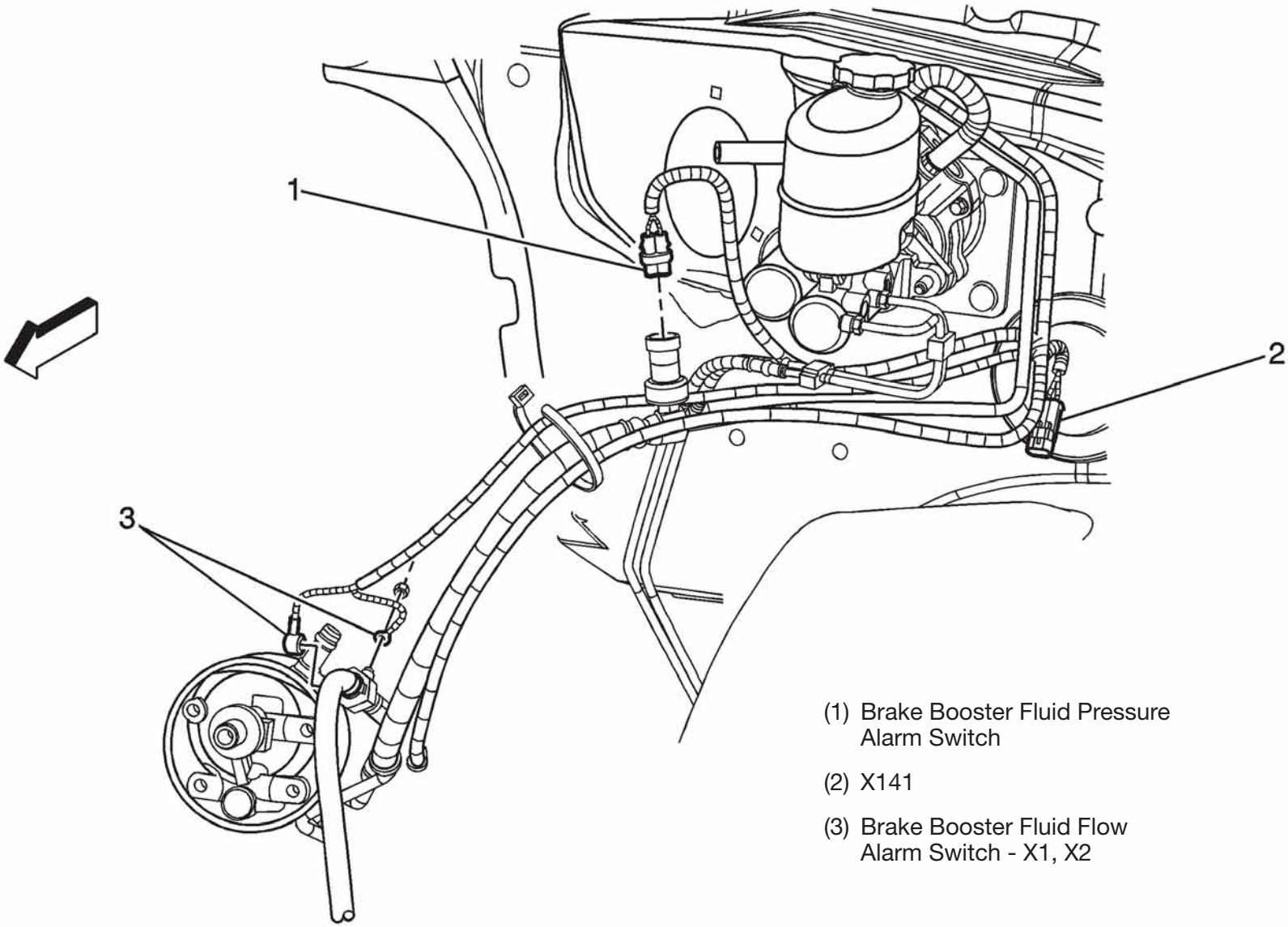
(5) Blower Motor

(6) Brake Fluid Level Switch (Heavy Duty)

(7) Engine Control Module (ECM)

(8) Fuse Block - Underhood

## Brake Booster Fluid Alarm Switches (UJ1)

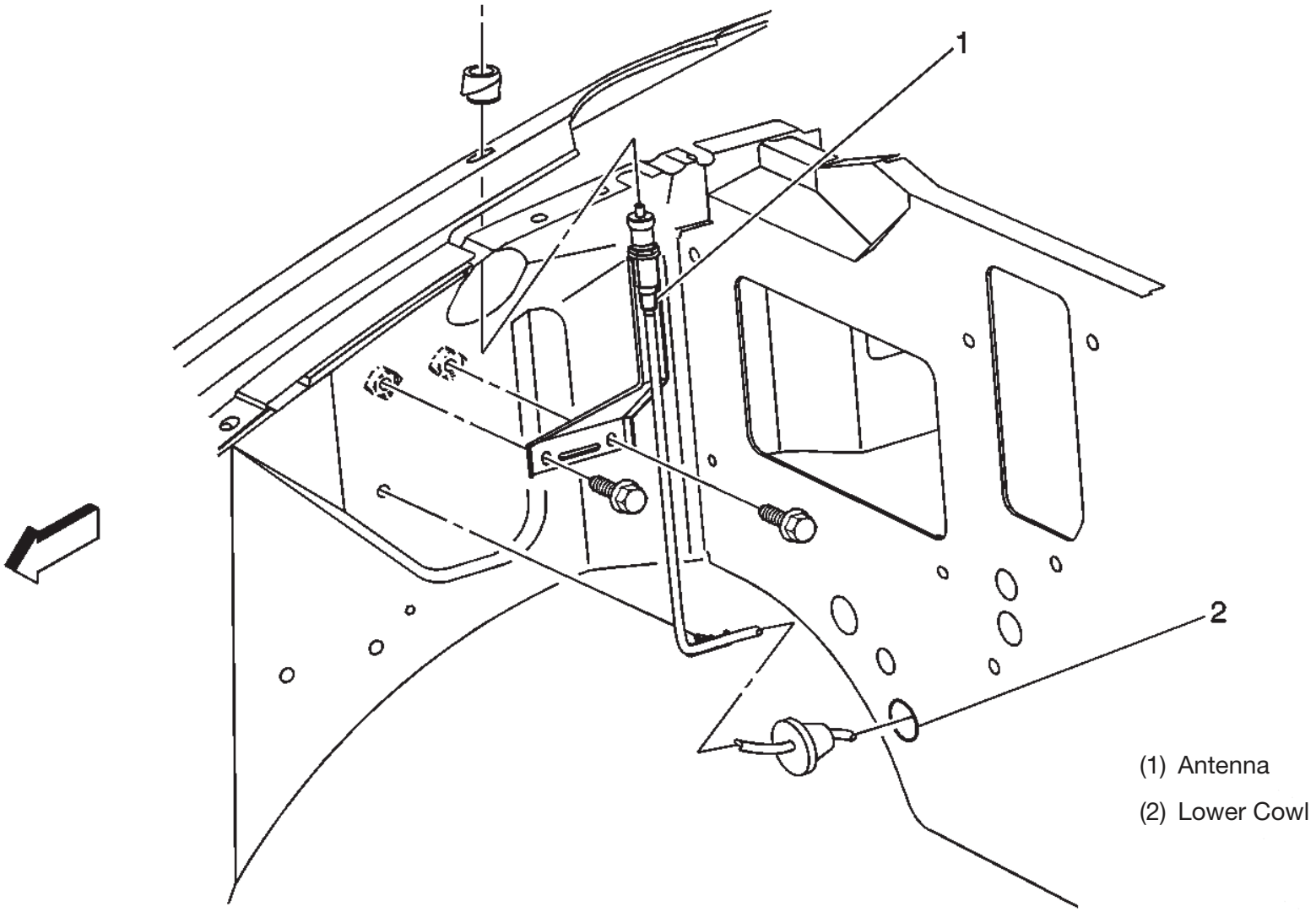



(1) Brake Booster Fluid Pressure Alarm Switch

(2) X141

(3) Brake Booster Fluid Flow Alarm Switch - X1, X2

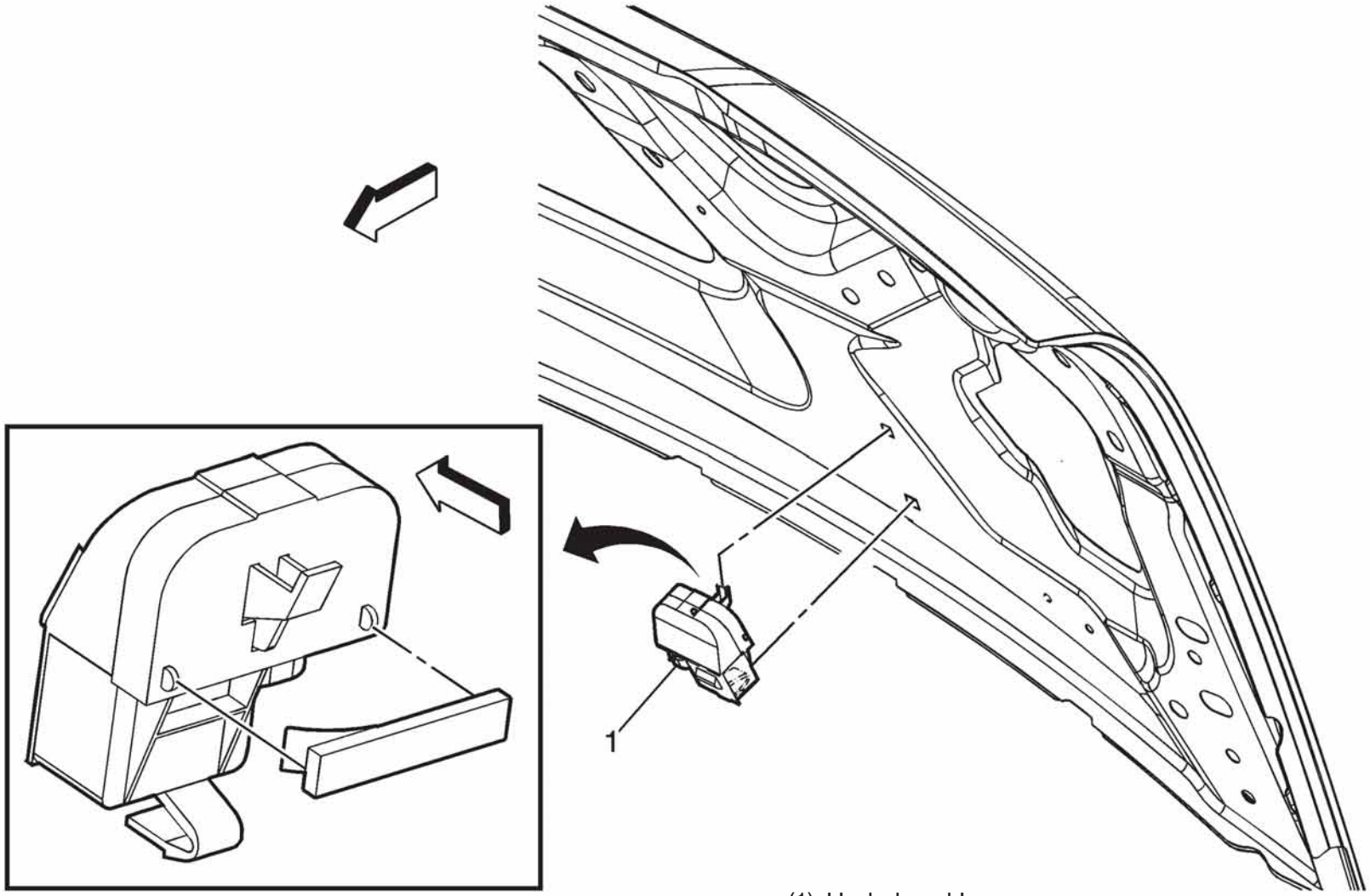
## Right Rear of the Engine Compartment




(1) Antenna

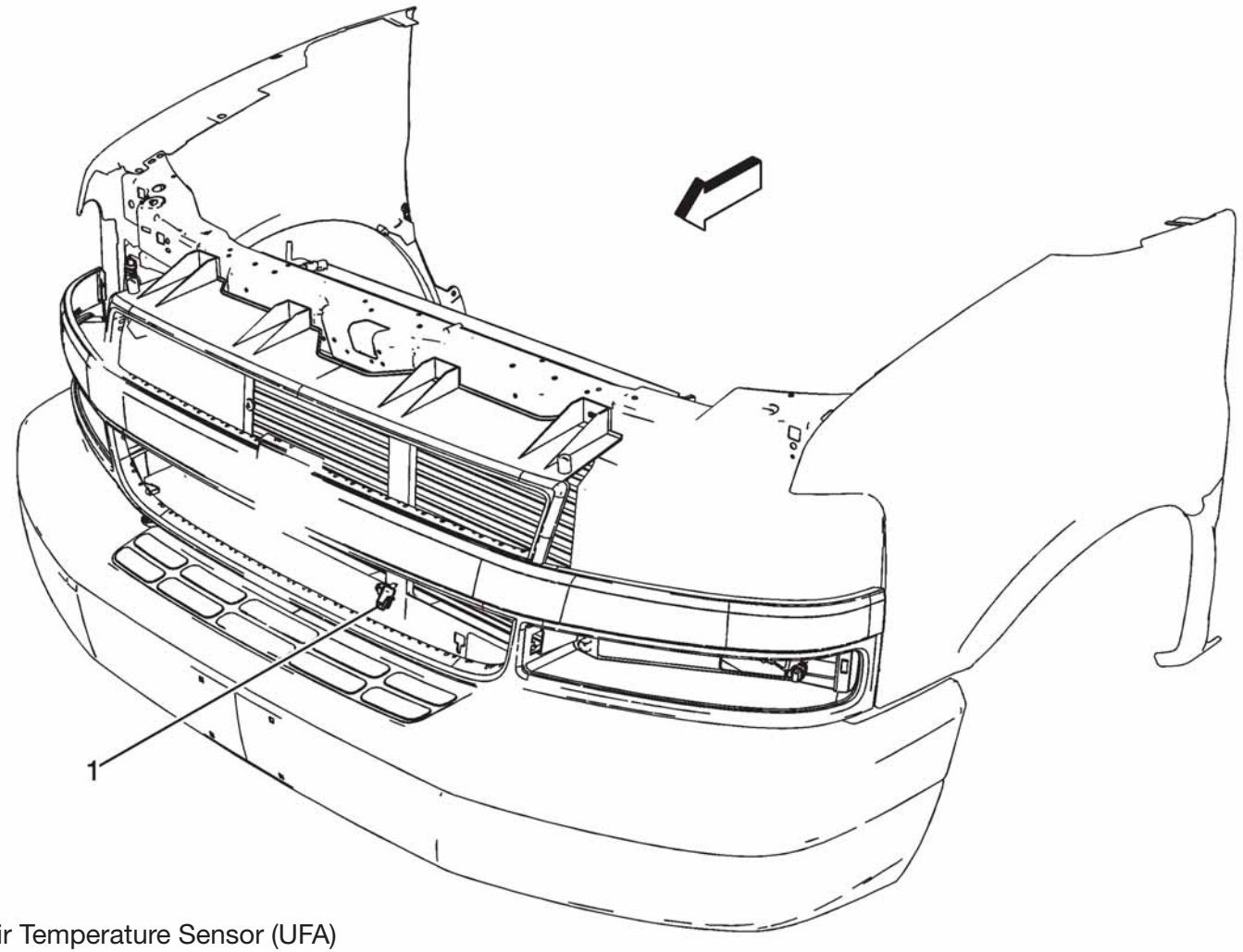
(2) Lower Cowl

## Underhood Lamp



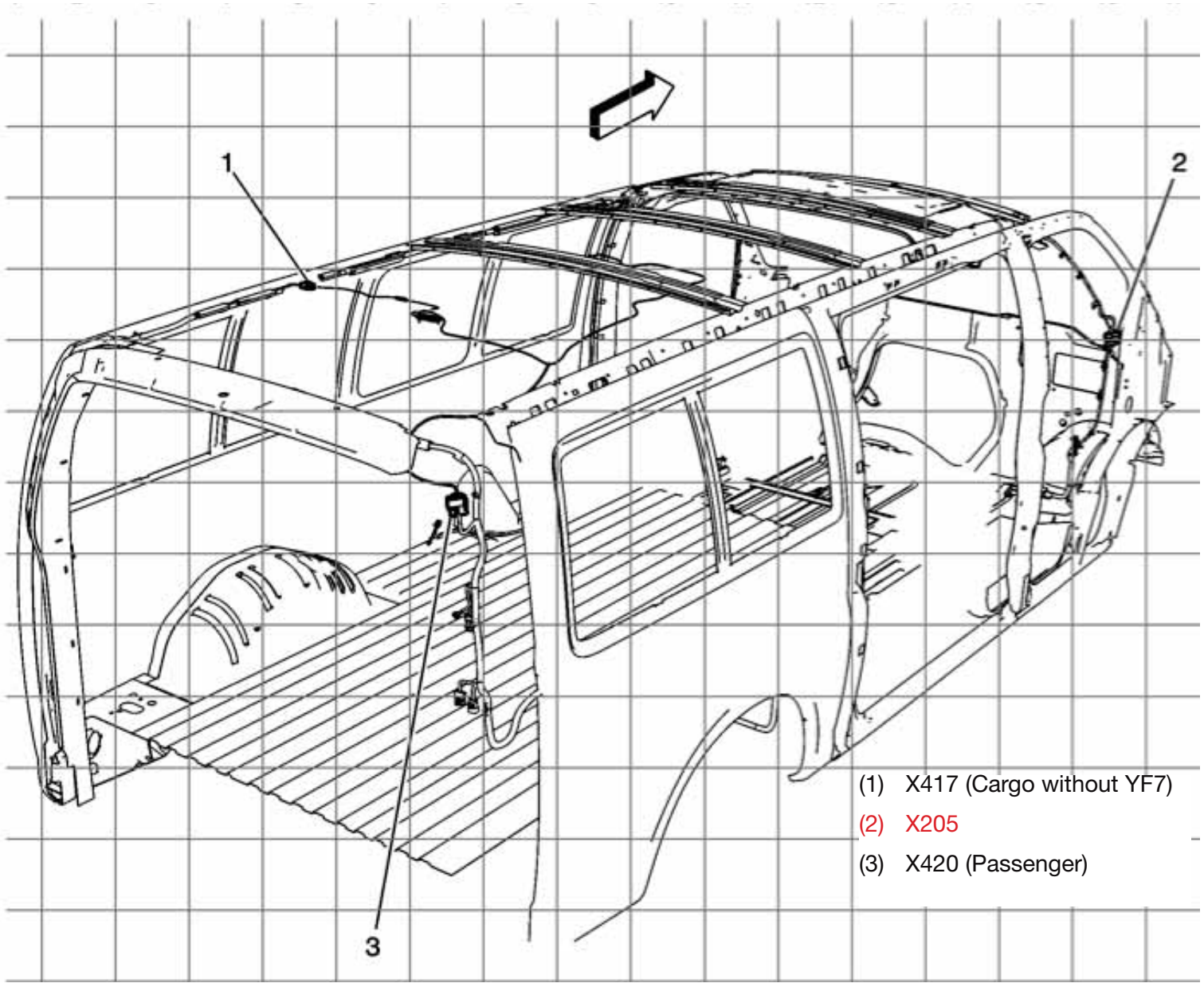

(1) Underhood Lamp

## Ambient Air Temperature Sensor (UFA)




(1) Ambient Air Temperature Sensor (UFA)

## Front and Rear Headliner Harness Routing

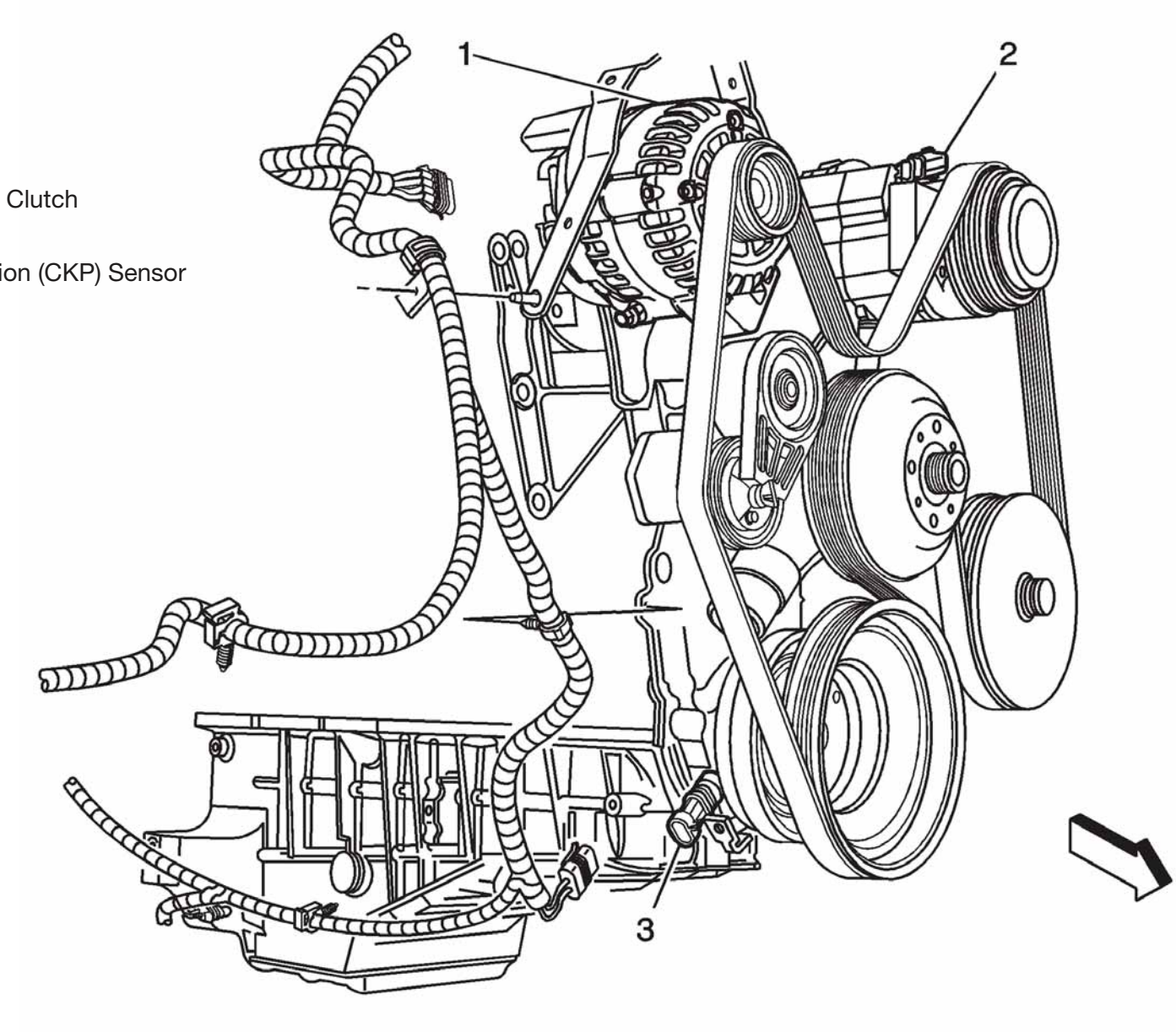


## Front of the Engine (LU3)

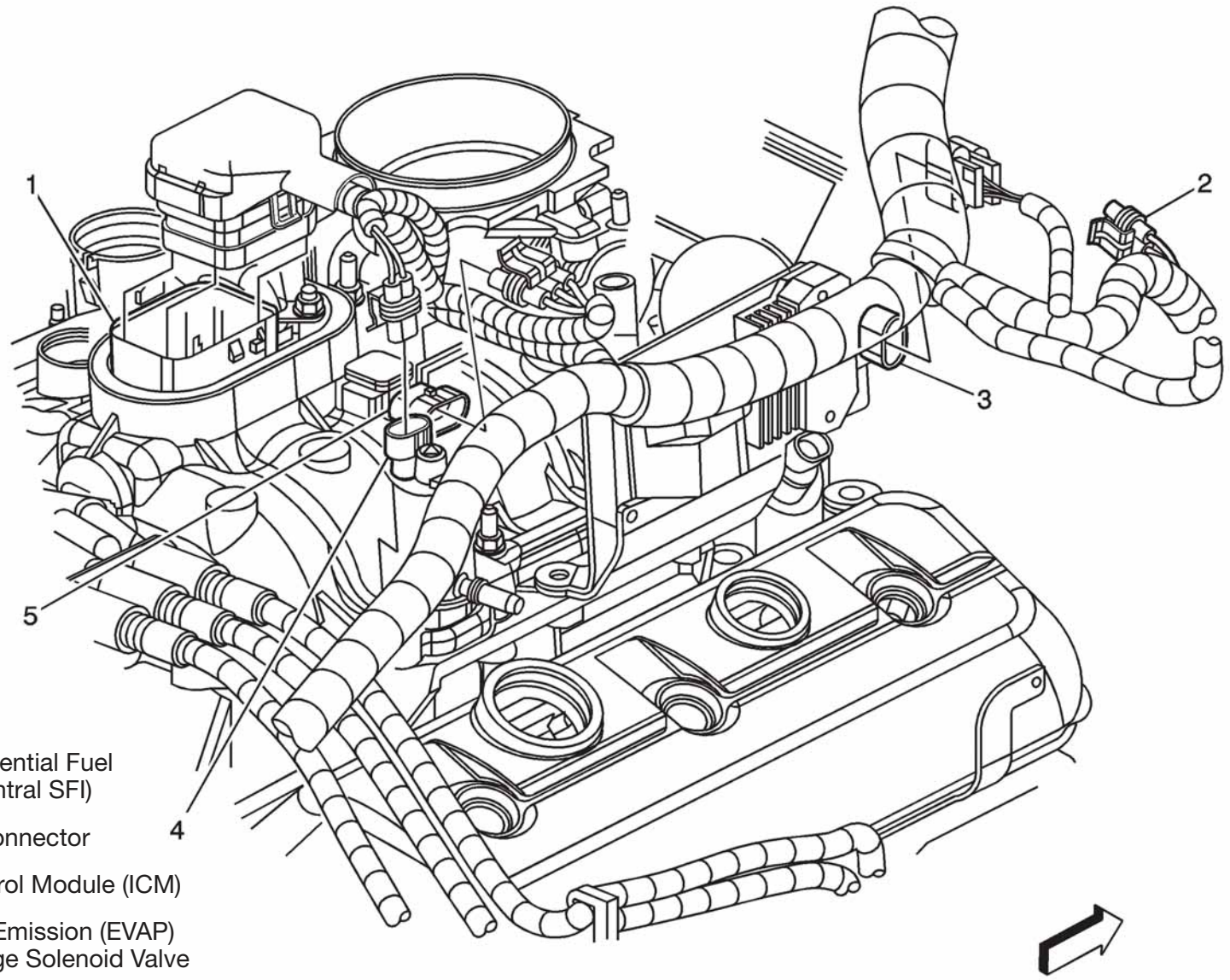
(1) Generator

(2) A/C Compressor Clutch Connector (C60)

(3) Crankshaft Position (CKP) Sensor



## Right Side of the Engine (LU3)




(1) Central Sequential Fuel Injection (Central SFI)

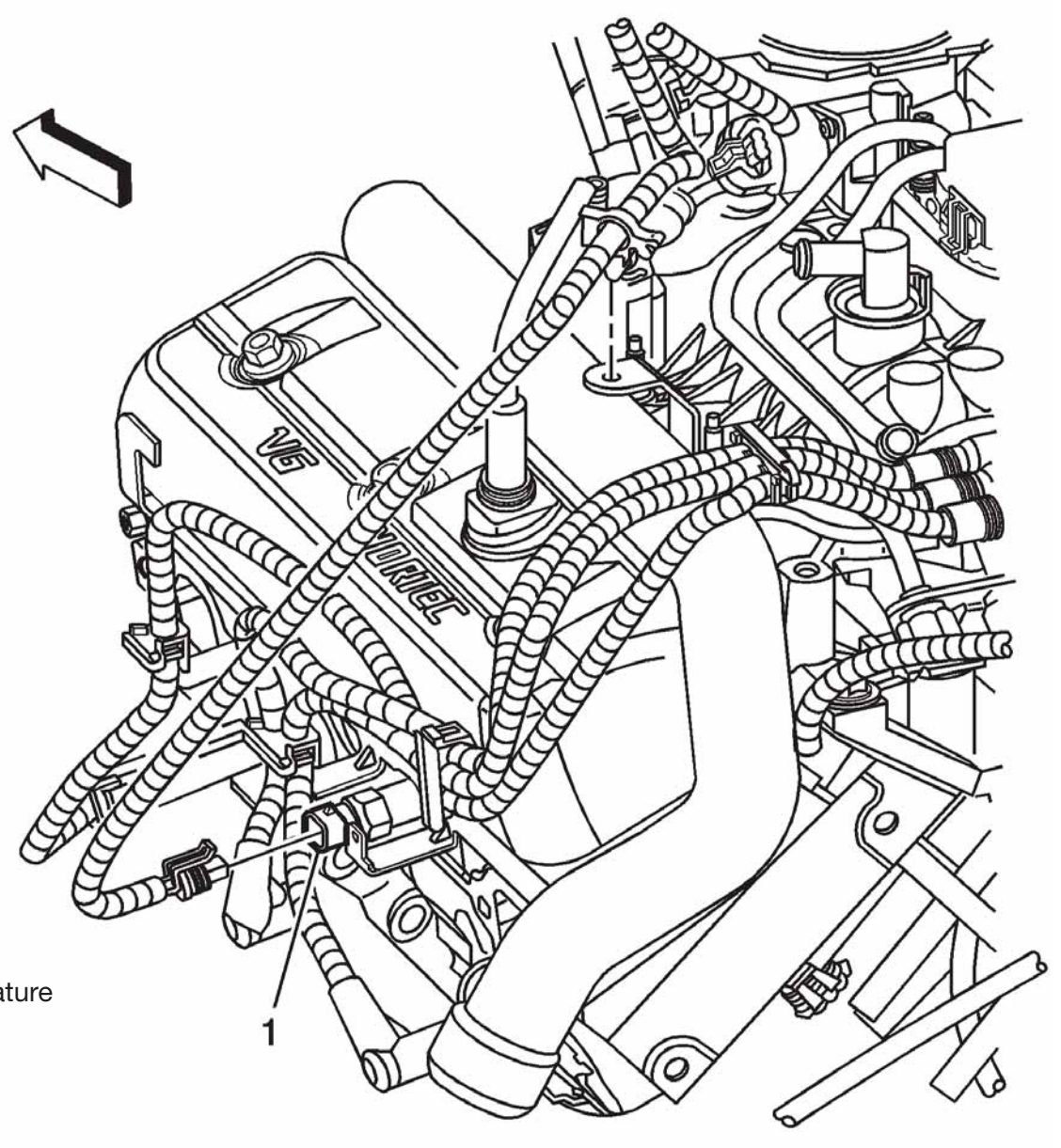
(2) Generator Connector

(3) Ignition Control Module (ICM)

(4) Evaporative Emission (EVAP) Canister Purge Solenoid Valve

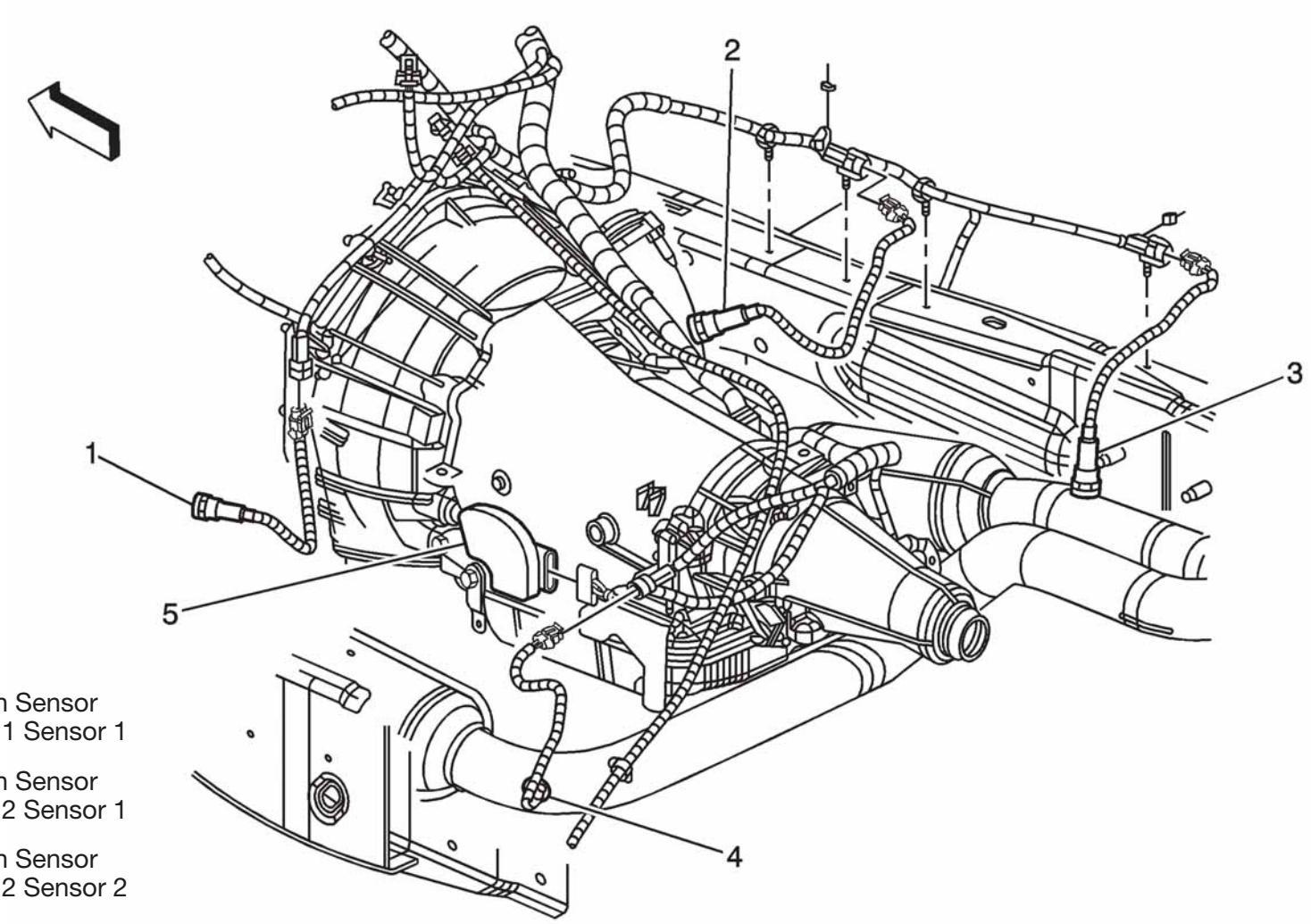
(5) Manifold Absolute Pressure (MAP) Sensor

## Left Rear of the Engine (LU3)




(1) Engine Coolant Temperature (ECT) Sensor

## Rear of the Engine (LU3 or LMF)




(1) Heated Oxygen Sensor (HO2S) - Bank 1 Sensor 1

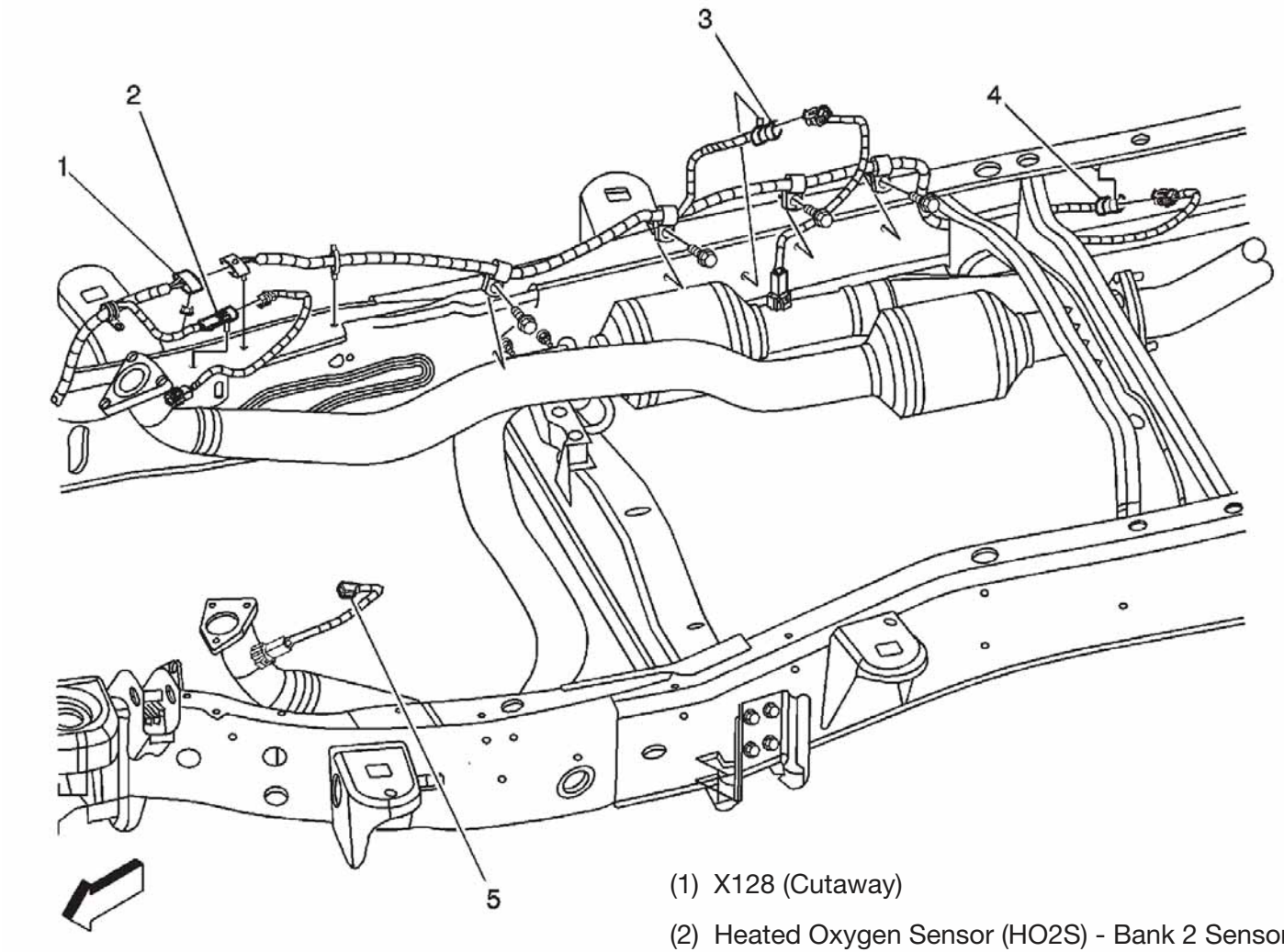
(2) Heated Oxygen Sensor (HO2S) - Bank 2 Sensor 1

(3) Heated Oxygen Sensor (HO2S) - Bank 2 Sensor 2

(4) Heated Oxygen Sensor (HO2S) - Bank 1 Sensor 2

(5) Park/Neutral Position (PNP) Switch

## Oxygen Sensors (L20 or L96)




(1) X128 (Cutaway)

(2) Heated Oxygen Sensor (HO2S) - Bank 2 Sensor 1 Connector

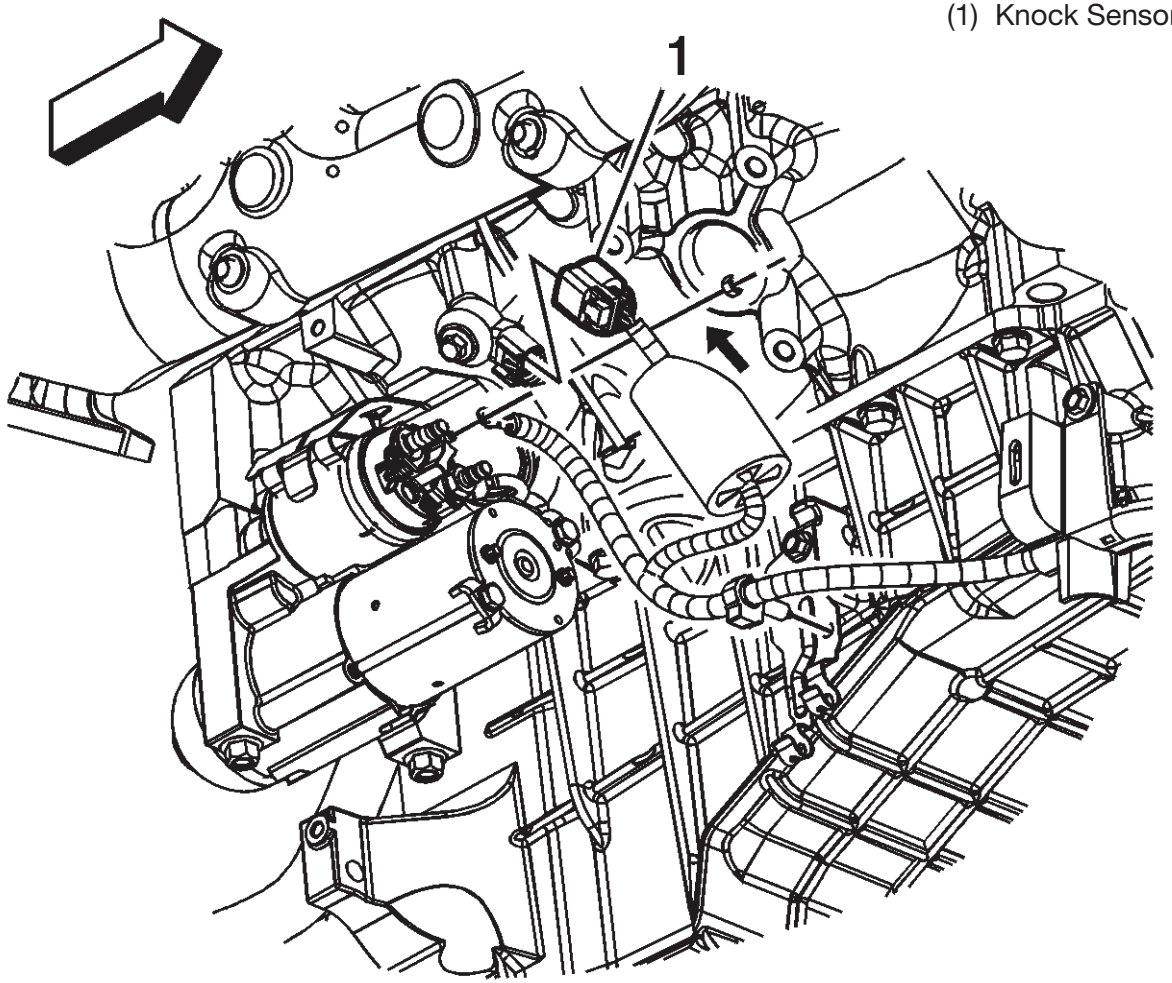
(3) Heated Oxygen Sensor (HO2S) - Bank 1 Sensor 2 Connector

(4) Heated Oxygen Sensor (HO2S) - Bank 2 Sensor 2 Connector

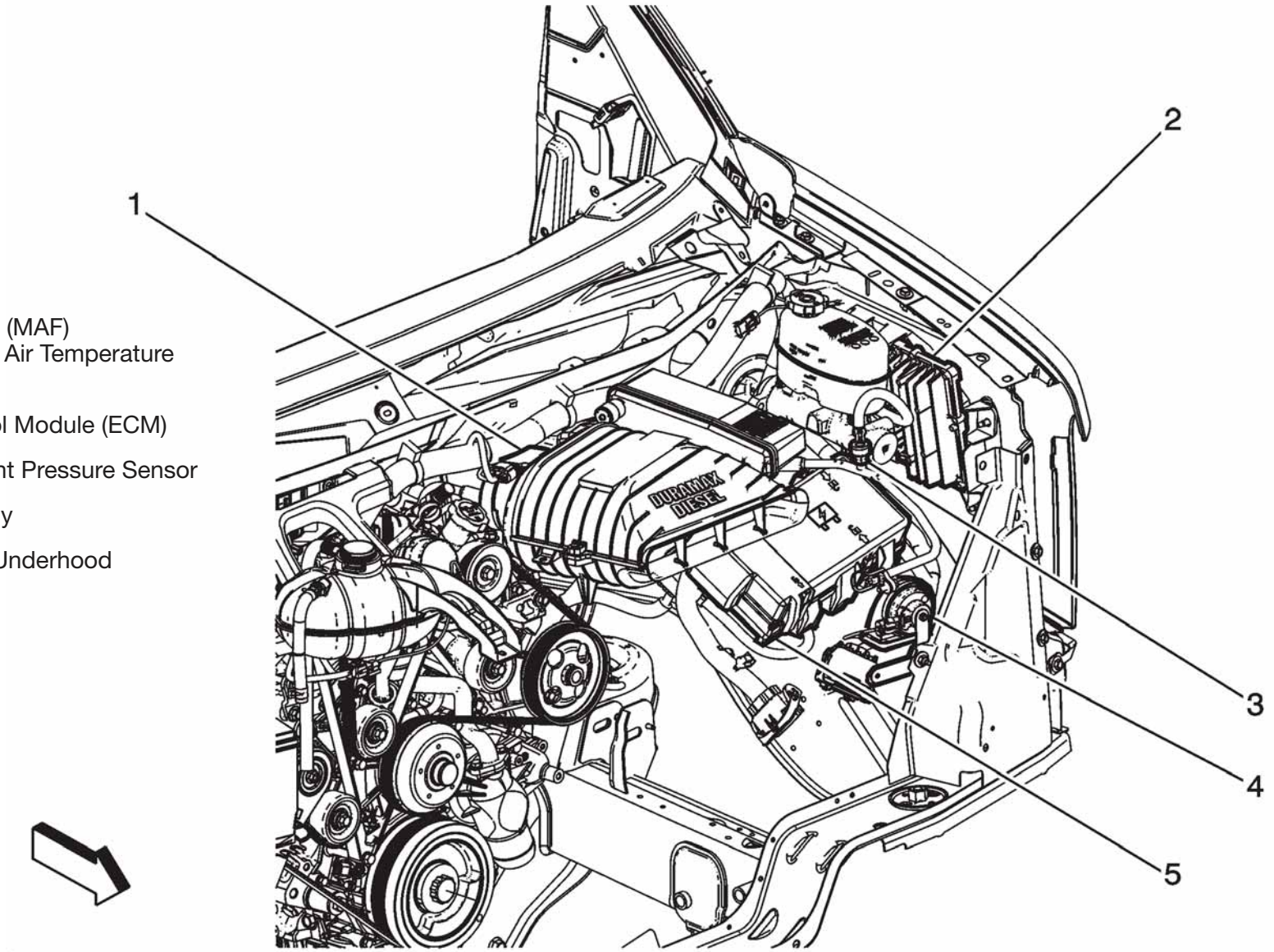
(5) Heated Oxygen Sensor (HO2S) - Bank 1 Sensor 1 Connector

## Lower Right of Engine (LU3)

(1) Knock Sensor (KS) 2



## Engine Components (LGH)




(1) Mass Air Flow (MAF) Sensor/Intake Air Temperature (IAT) Sensor

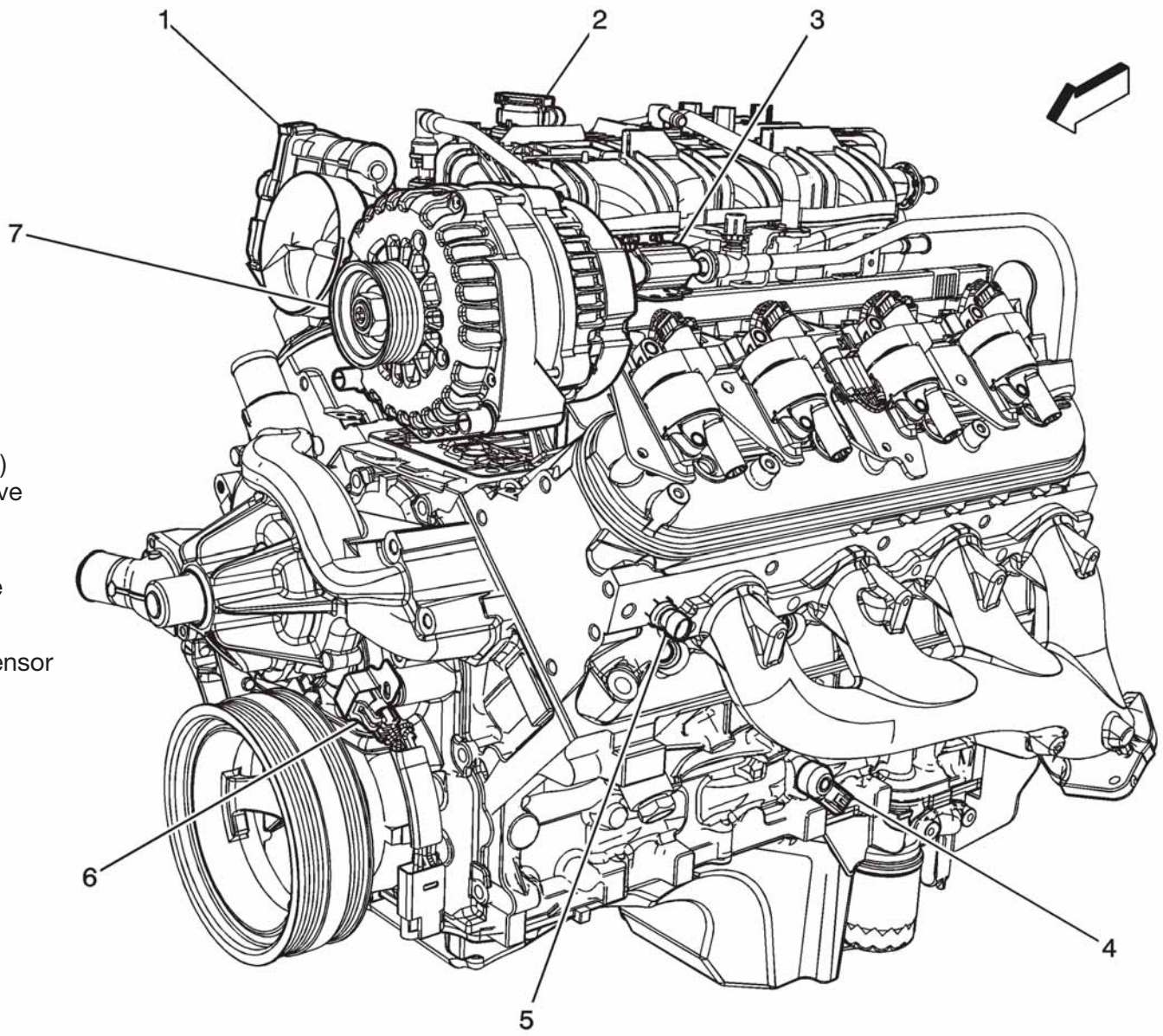
(2) Engine Control Module (ECM)

(3) A/C Refrigerant Pressure Sensor

(4) Horn Assembly

(5) Fuse Block - Underhood

## Front of the Engine Components (L20, LMF or L96)




(1) Throttle Body

(2) Manifold Absolute Pressure (MAP) Sensor

(3) Evaporative Emission (EVAP) Canister Purge Solenoid Valve

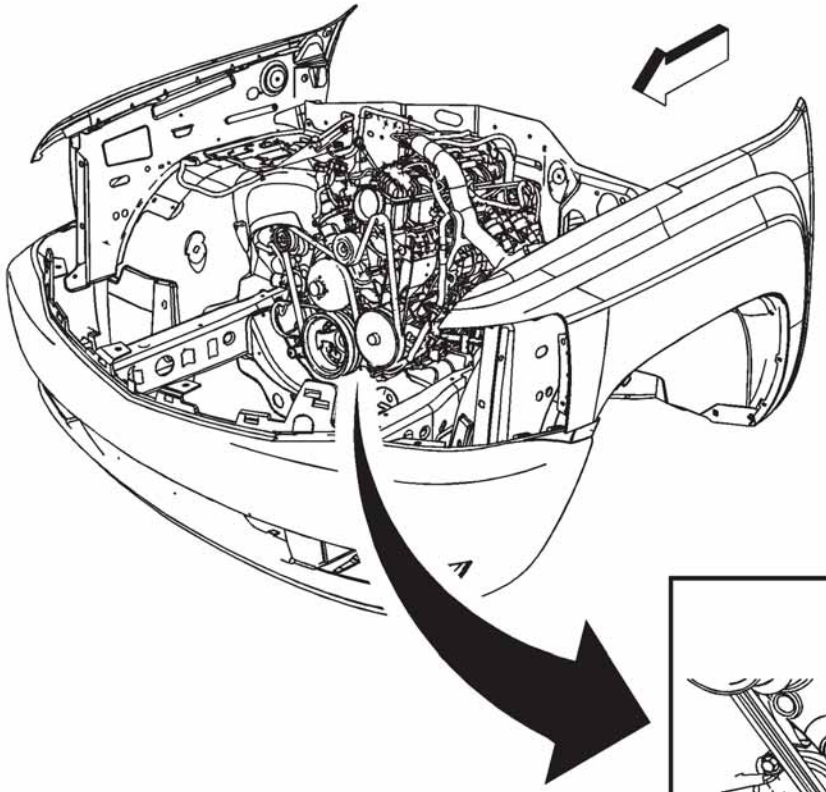
(4) Knock Sensor (KS) 1

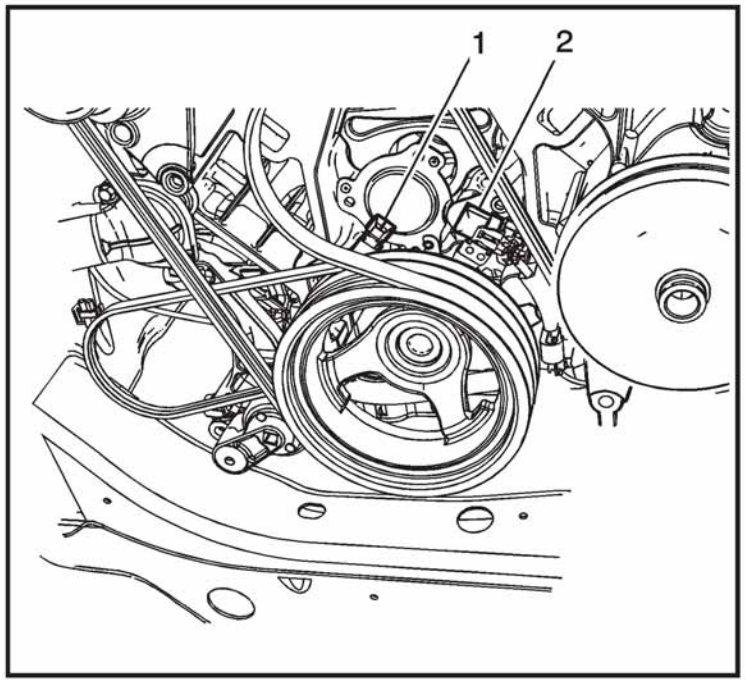
(5) Engine Coolant Temperature (ECT) Sensor

(6) Camshaft Position (CMP) Sensor

(7) Generator

## Left Front Side of the Engine Components (L20, LMF or L96)



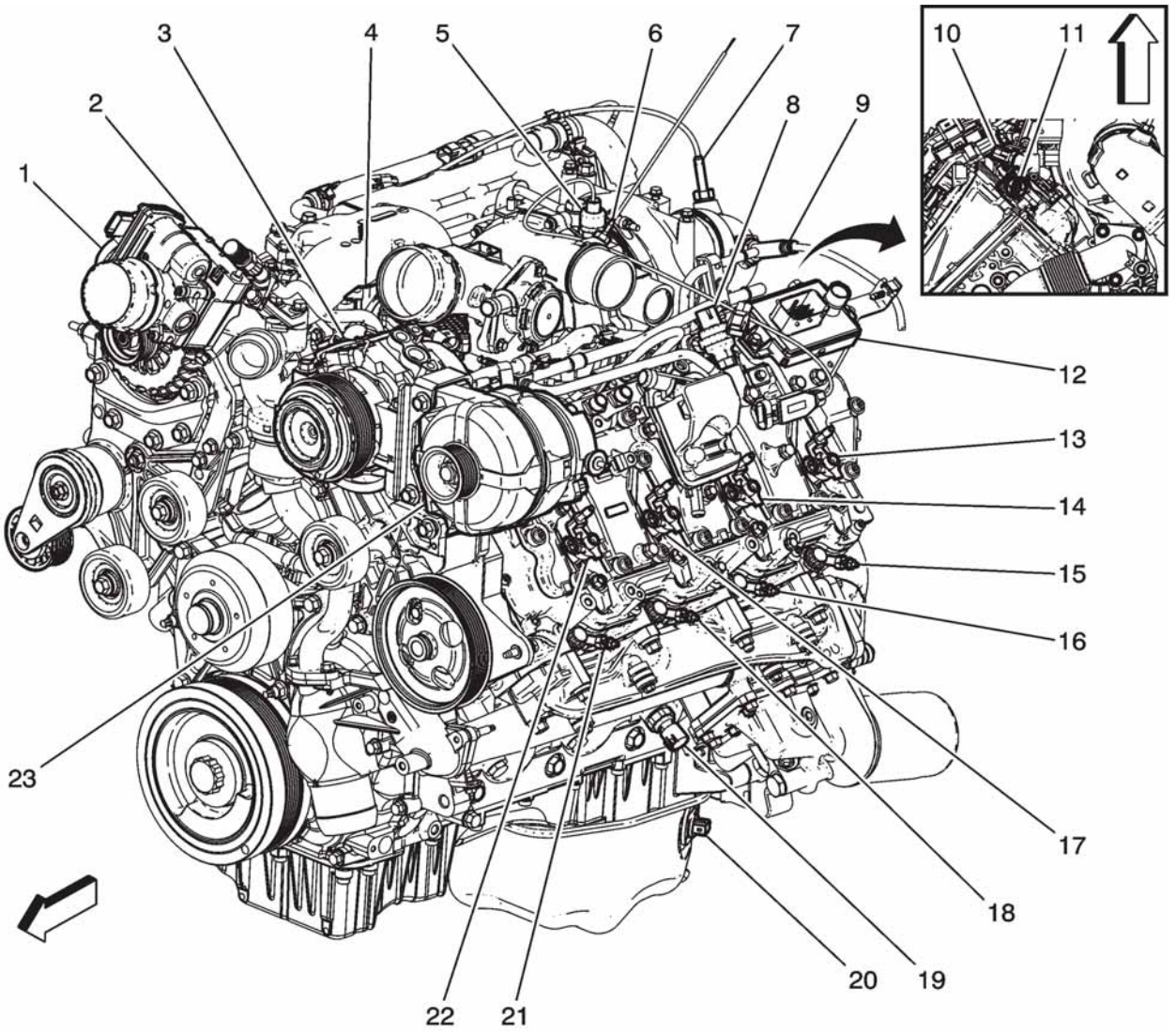



(1) Camshaft Position (CMP) Actuator Solenoid Valve (L96)

(2) Camshaft Position (CMP) Sensor

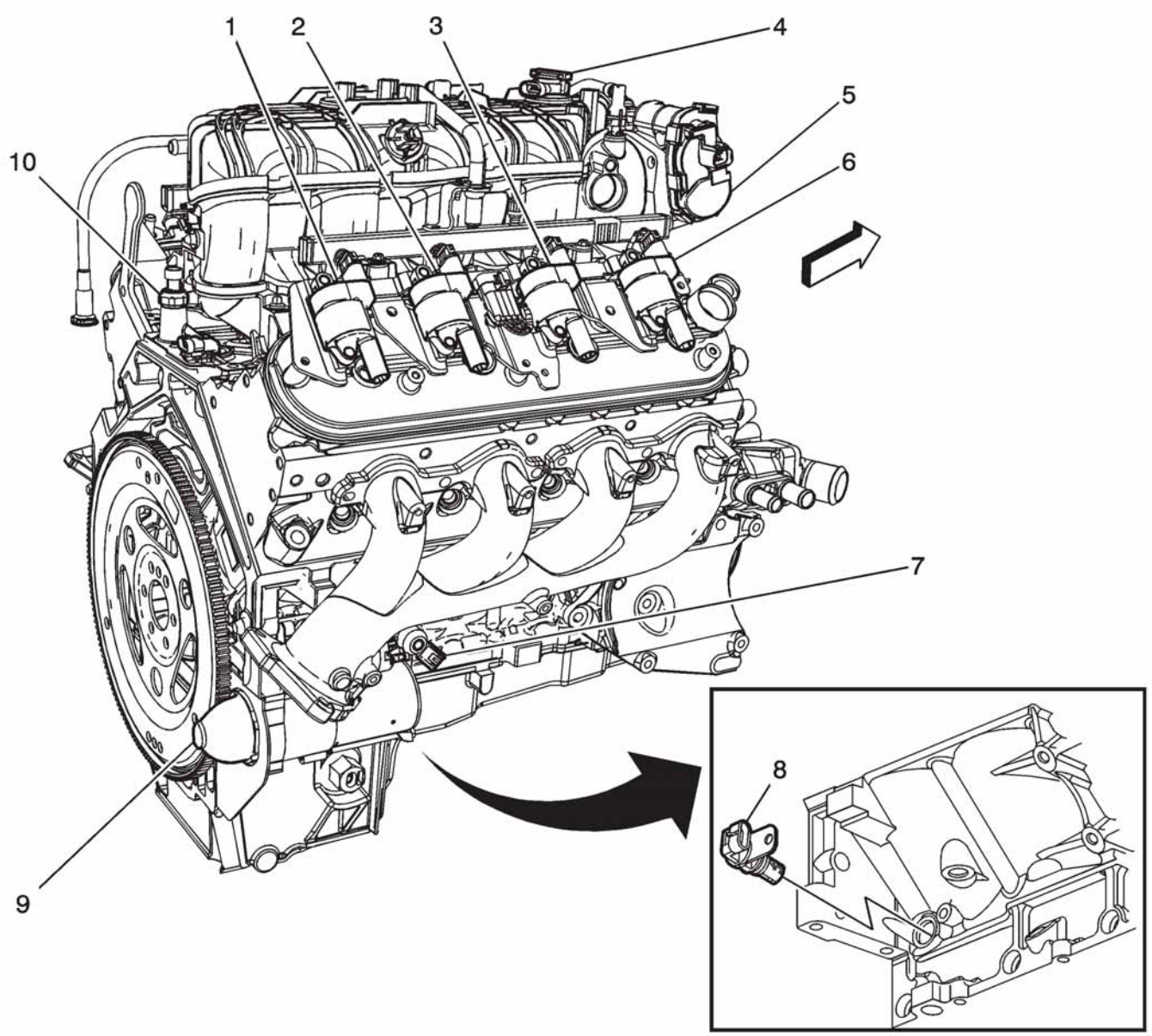
## Left Front of Engine Components (LGH)

(1) Intake Air Valve
(2) Intake Air Heater (IAH)
(3) A/C Compressor Clutch
(4) Exhaust Gas Recirculation (EGR) Valve
(5) Turbocharger Vane Position Sensor
(6) Charge Air Cooler Inlet Temperature Sensor
(7) Exhaust Gas Recirculation (EGR) Temperature Sensor 1
(8) Fuel Filter Pressure Switch
(9) Nitrogen Oxides Sensor 1
(10) Fuel Temperature Sensor 2
(11) Fuel Rail Pressure (FRP) Sensor
(12) Glow Plug Control Module (GPCM)
(13) Fuel Injector 8
(14) Fuel Injector 6
(15) Glow Plug 8
(16) Glow Plug 6
(17) Fuel Injector 4
(18) Glow Plug 4
(19) Engine Oil Pressure (EOP) Sensor
(20) Engine Oil Level (EOL) Switch
(21) Glow Plug 2
(22) Fuel Injector 2
(23) Generator

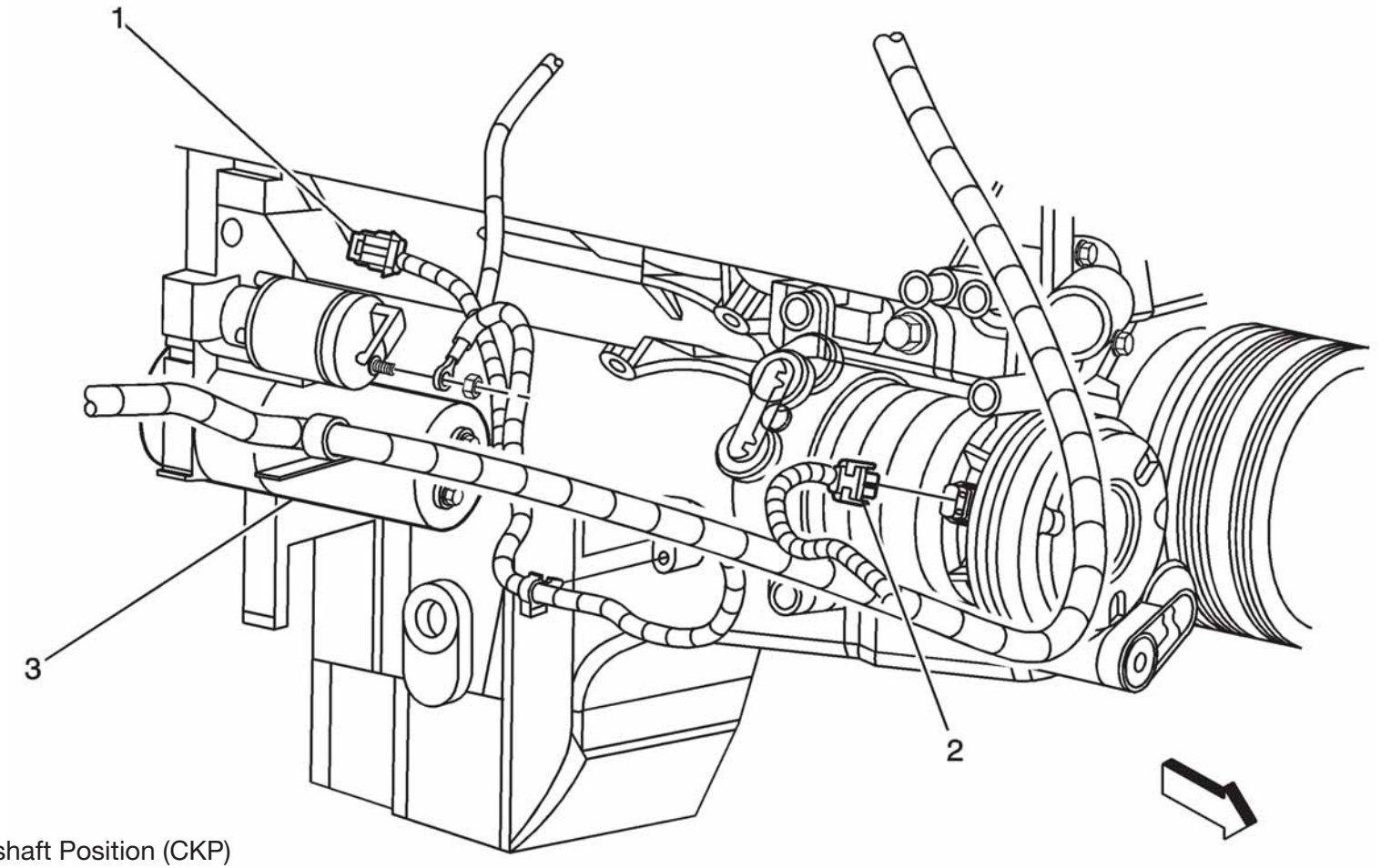


## Right Side of the Engine Components (L20, LMF or L96)

(1) Ignition Coil 8
(2) Ignition Coil 6
(3) Ignition Coil 4
(4) Manifold Absolute Pressure (MAP) Sensor
(5) Throttle Body
(6) Ignition Coil 2
(7) Knock Sensor (KS) 2
(8) Crankshaft Position (CKP) Sensor
(9) Starter
(10) Engine Oil Pressure (EOP) Sensor



## Right Side of the Engine (L20, LMF or L96)



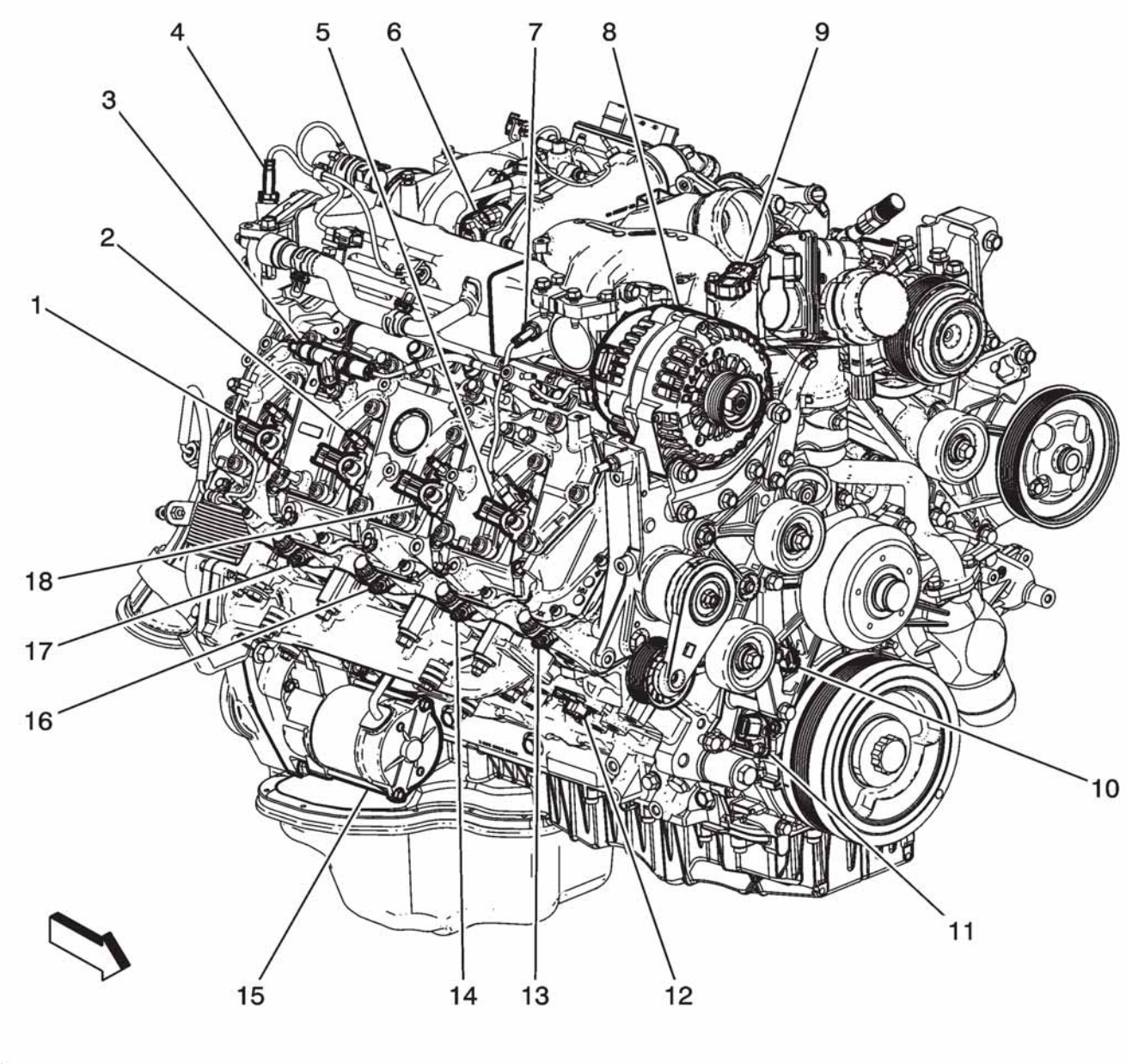

(1) Crankshaft Position (CKP) Sensor Connector

(2) A/C Compressor Clutch Connector (C60)

(3) Starter Motor

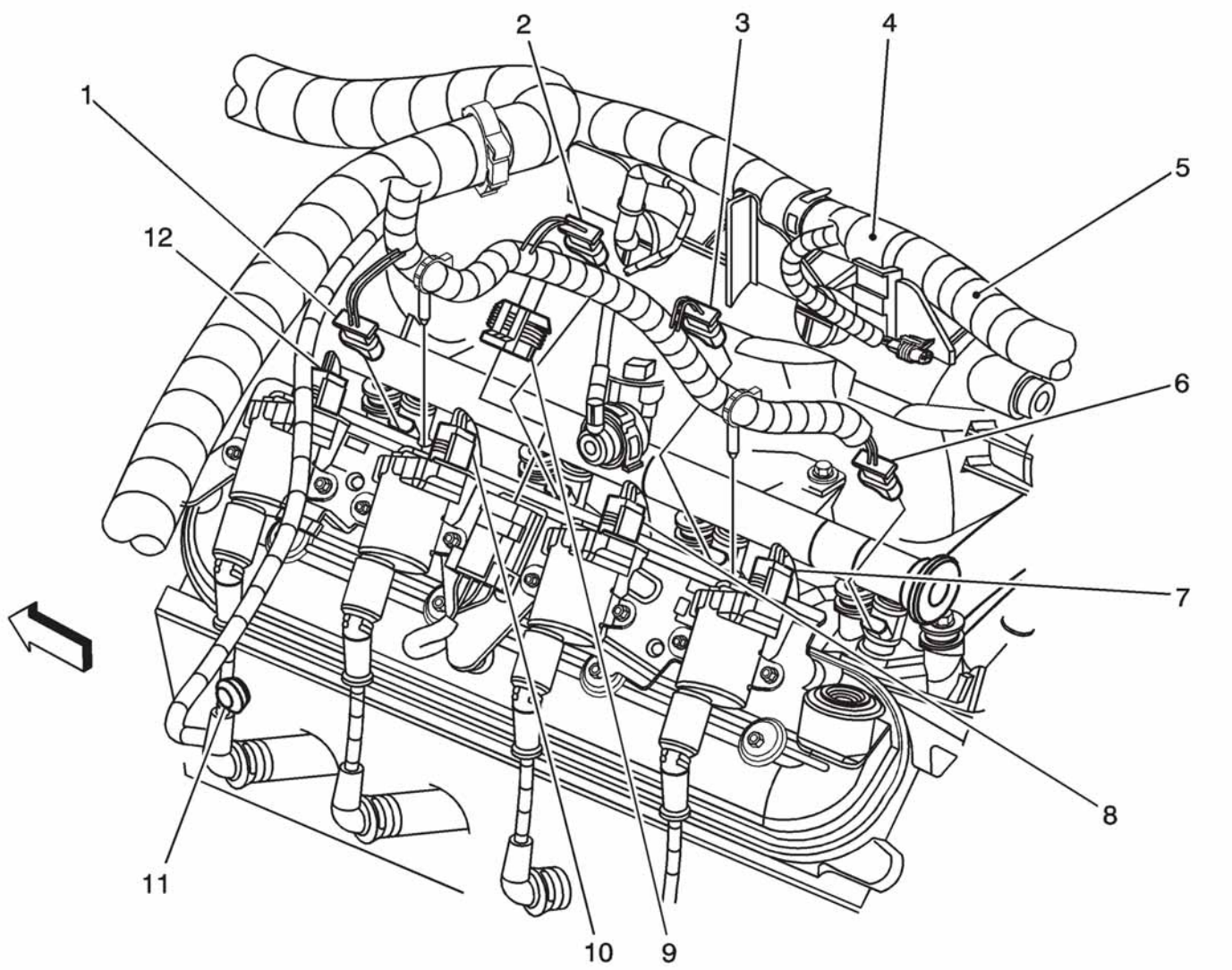
## Right Front of Engine Components (LGH)

(1) Fuel Injector 7
(2) Fuel Injector 5
(3) Exhaust Aftertreatment Fuel Injector
(4) Exhaust Temperature Sensor 1
(5) Fuel Injector 1
(6) Turbocharger Vane Position Control Solenoid Valve
(7) Exhaust Gas Recirculation (EGR) Temperature Sensor 2
(8) Generator
(9) Manifold Absolute Pressure (MAP) Sensor
(10) Camshaft Position (CMP) Sensor
(11) Crankshaft Position (CKP) Sensor
(12) Engine Block Heater
(13) Glow Plug 1
(14) Glow Plug 3
(15) Starter Motor
(16) Glow Plug 5
(17) Glow Plug 7
(18) Fuel Injector 3



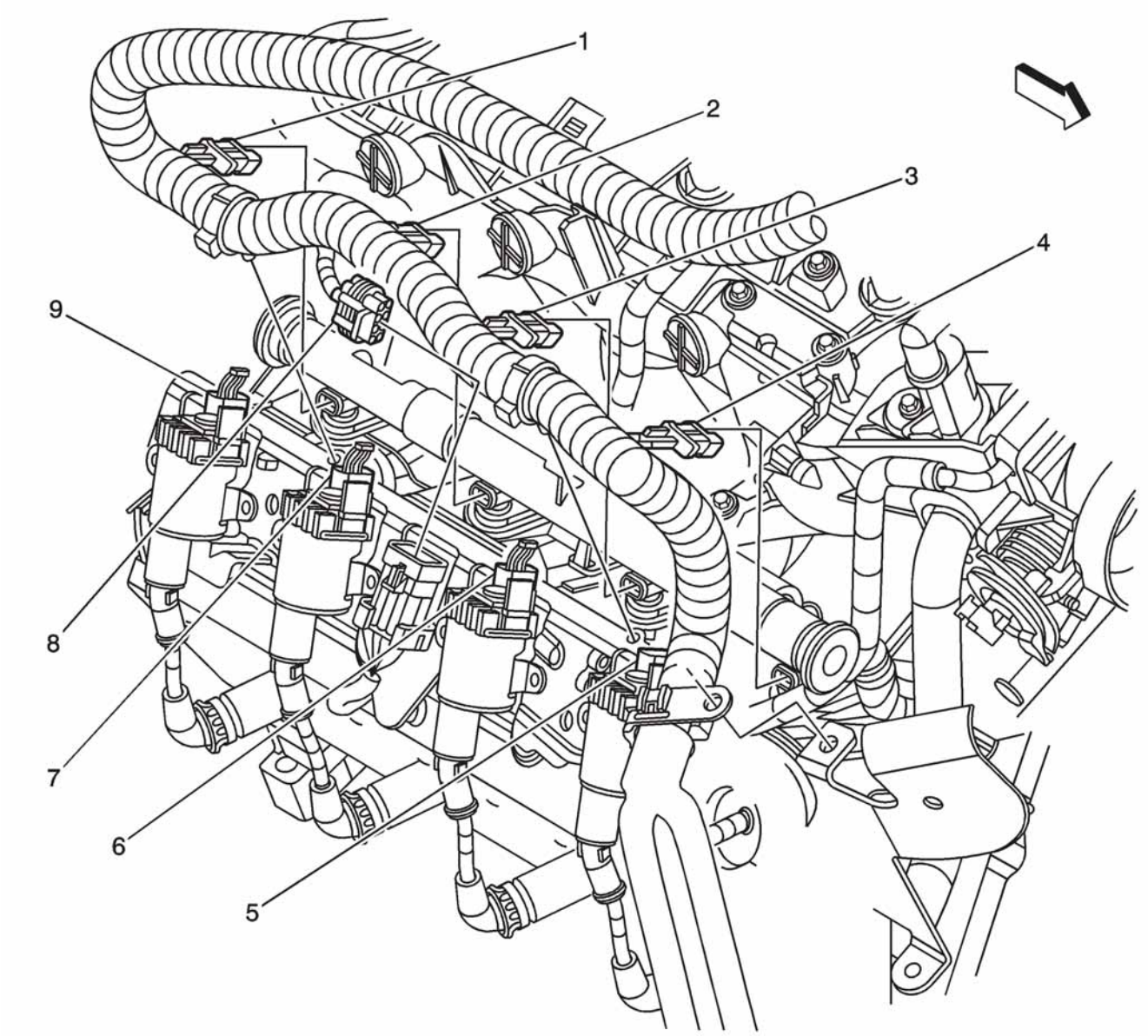
## Upper Left Side of the Engine (L20, LMF or L96)

(1) Fuel Injector 1 Connector
(2) Fuel Injector 3 Connector
(3) Fuel Injector 5 Connector
(4) J101
(5) J102
(6) Fuel Injector 7 Connector
(7) Ignition Coil 7 Connector
(8) Ignition Coil 5 Connector
(9) X126
(10) Ignition Coil 3 Connector
(11) Engine Coolant Temperature (ECT) Sensor Connector
(12) Ignition Coil 1 Connector

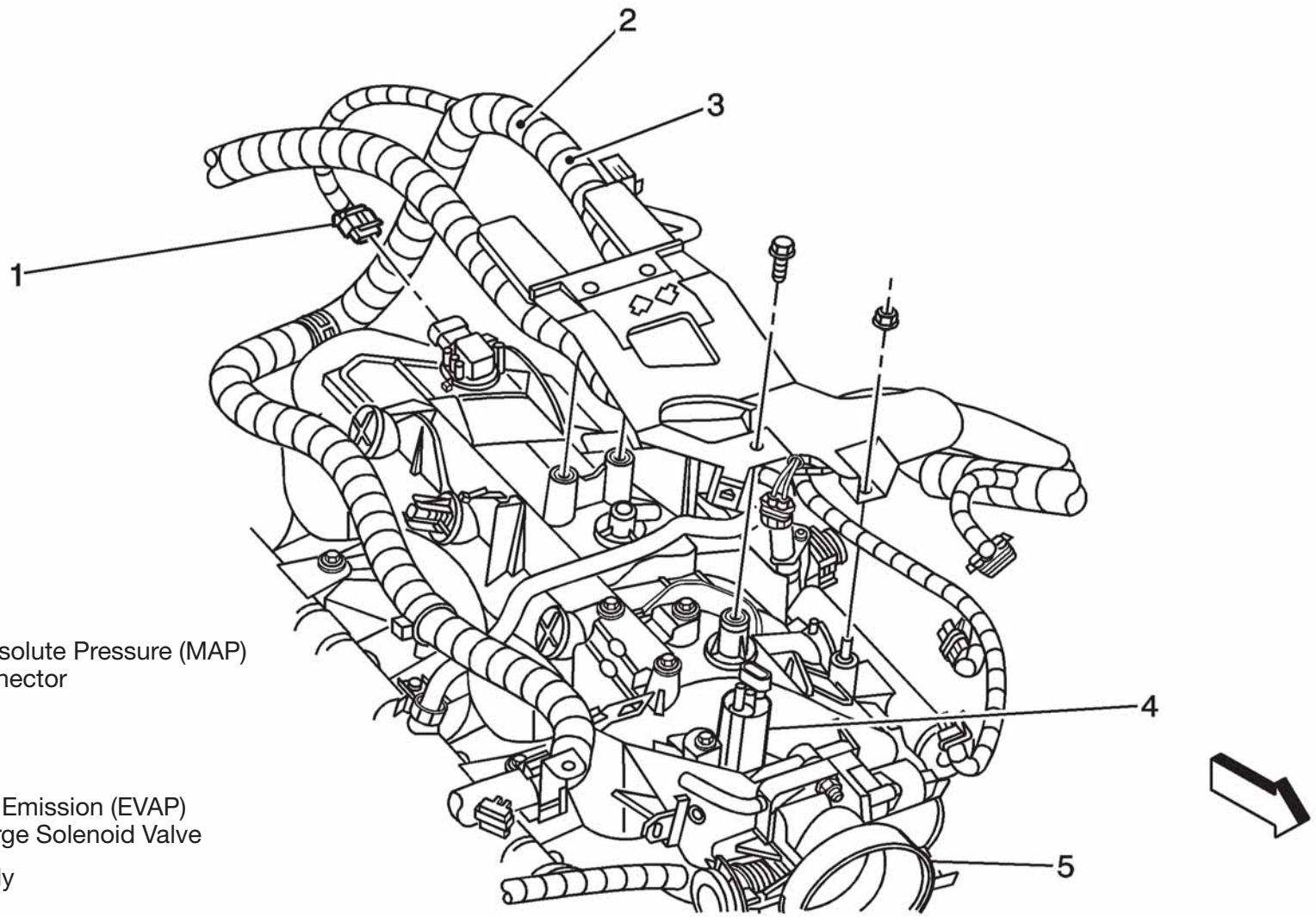


## Upper Right Side of the Engine (L20, LMF or L96)

(1) Fuel Injector 8 Connector
(2) Fuel Injector 6 Connector
(3) Fuel Injector 4 Connector
(4) Fuel Injector 2 Connector
(5) Ignition Coil 2 Connector
(6) Ignition Coil 4 Connector
(7) Ignition Coil 6 Connector
(8) X127
(9) Ignition Coil 8 Connector



## Top of the Engine (L20, LMF or L96)




(1) Manifold Absolute Pressure (MAP) Sensor Connector

(2) J102

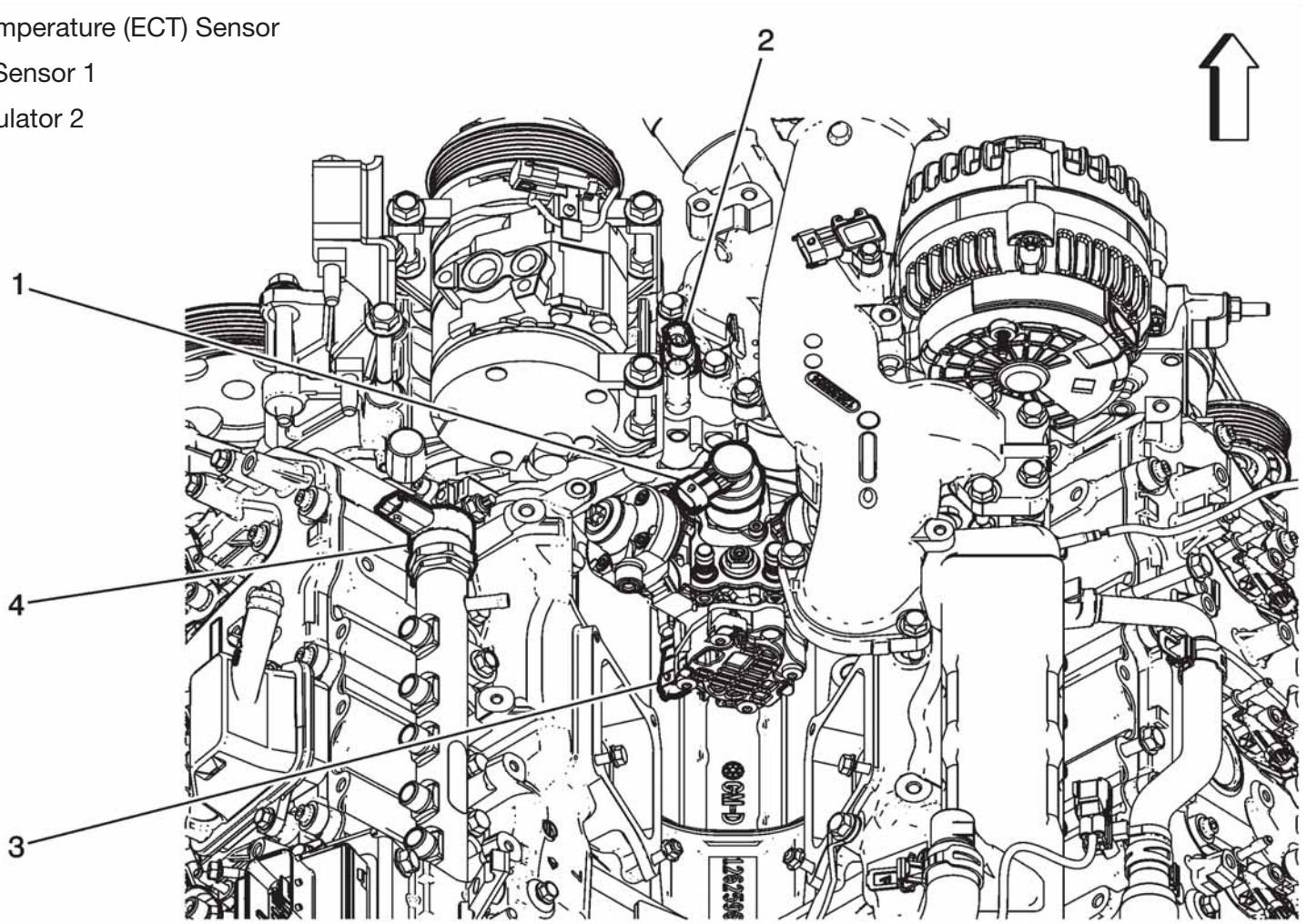
(3) J101

(4) Evaporative Emission (EVAP) Canister Purge Solenoid Valve

(5) Throttle Body

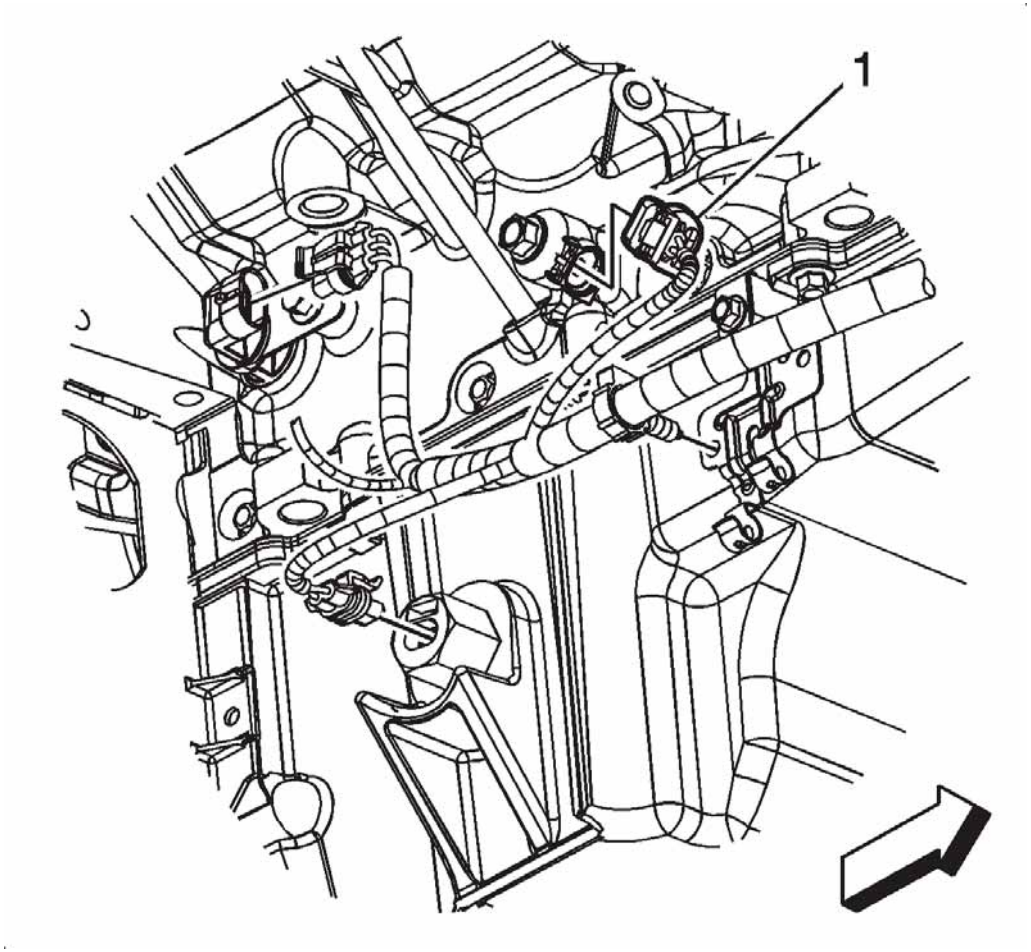
## Top of the Engine Components (LGH)

(1) Fuel Pressure Regulator 1
(2) Engine Coolant Temperature (ECT) Sensor
(3) Fuel Temperature Sensor 1
(4) Fuel Pressure Regulator 2



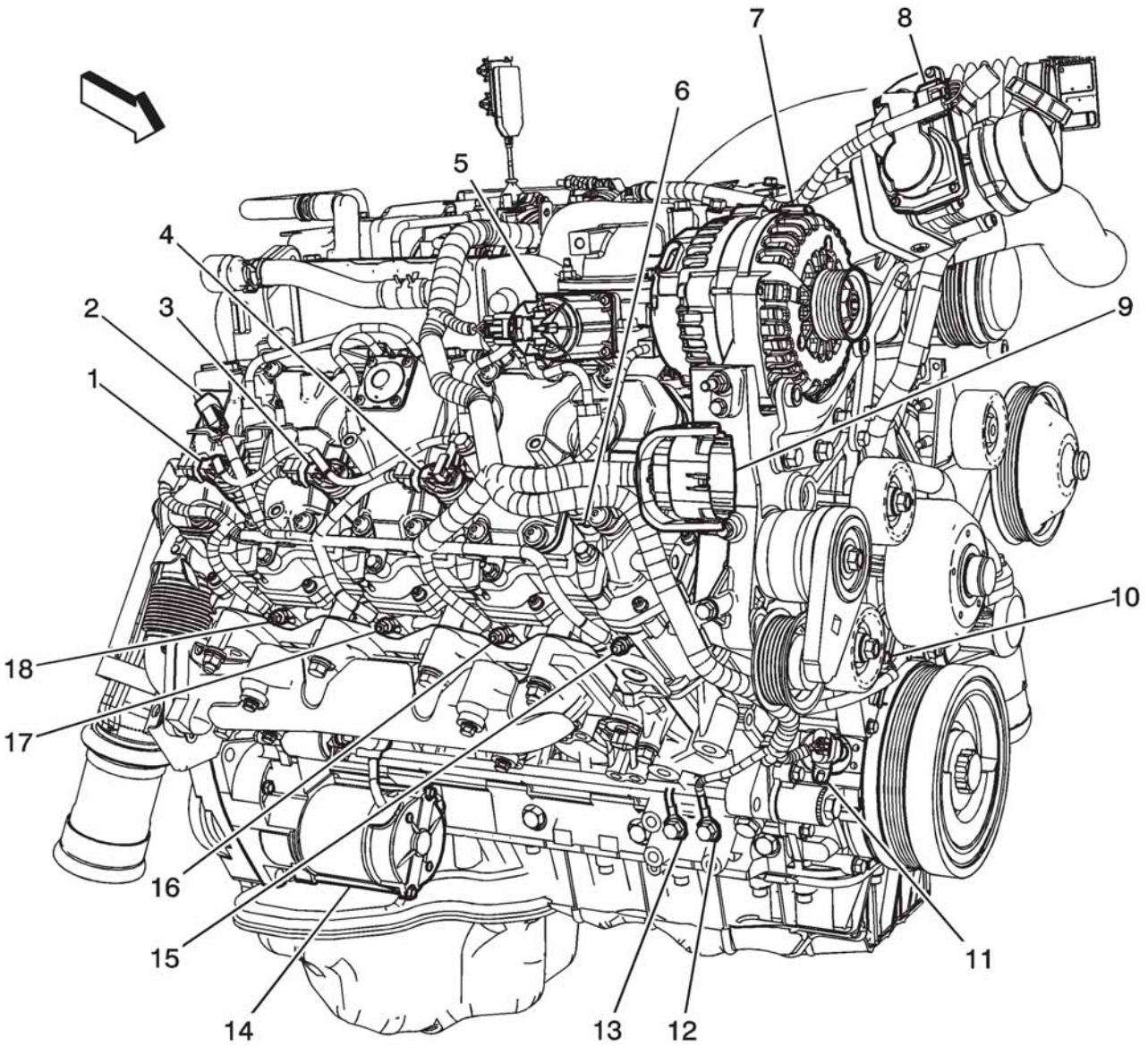
## Lower Right of Engine (L20, LMF or L96)

(1) Knock Sensor (KS) 2



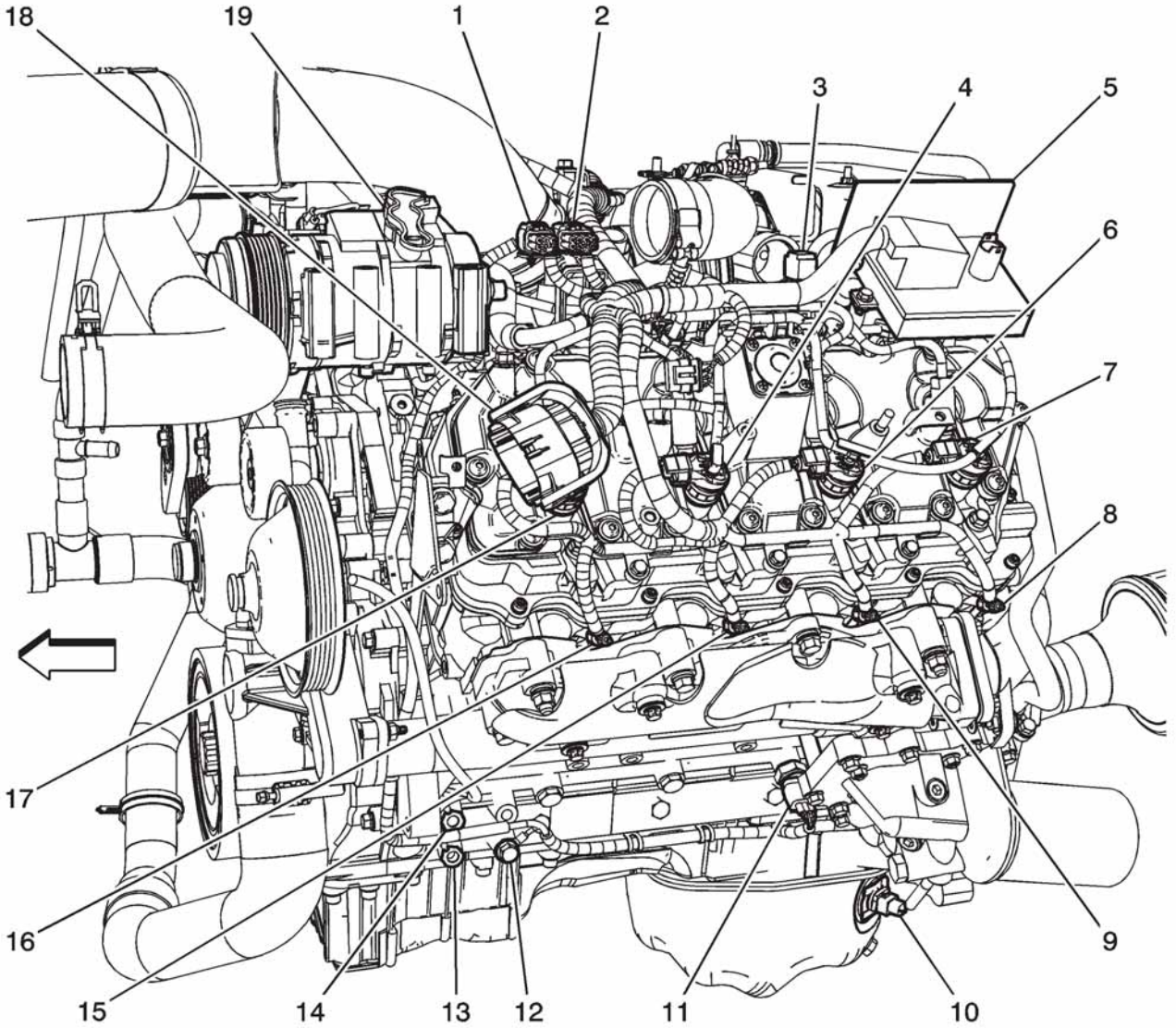
## Right Side of the Engine (LMM)

(1) Fuel Injector 7
(2) X112
(3) Fuel Injector 5
(4) Fuel Injector 3
(5) Exhaust Gas Recirculation (EGR) Valve
(6) Fuel Injector 1
(7) Generator
(8) Intake Air Valve
(9) X108
(10) Camshaft Position (CMP) Sensor
(11) Crankshaft Position (CKP) Sensor
(12) G108
(13) G104
(14) Starter Motor
(15) Glow Plug 1
(16) Glow Plug 3
(17) Glow Plug 5
(18) Glow Plug 7

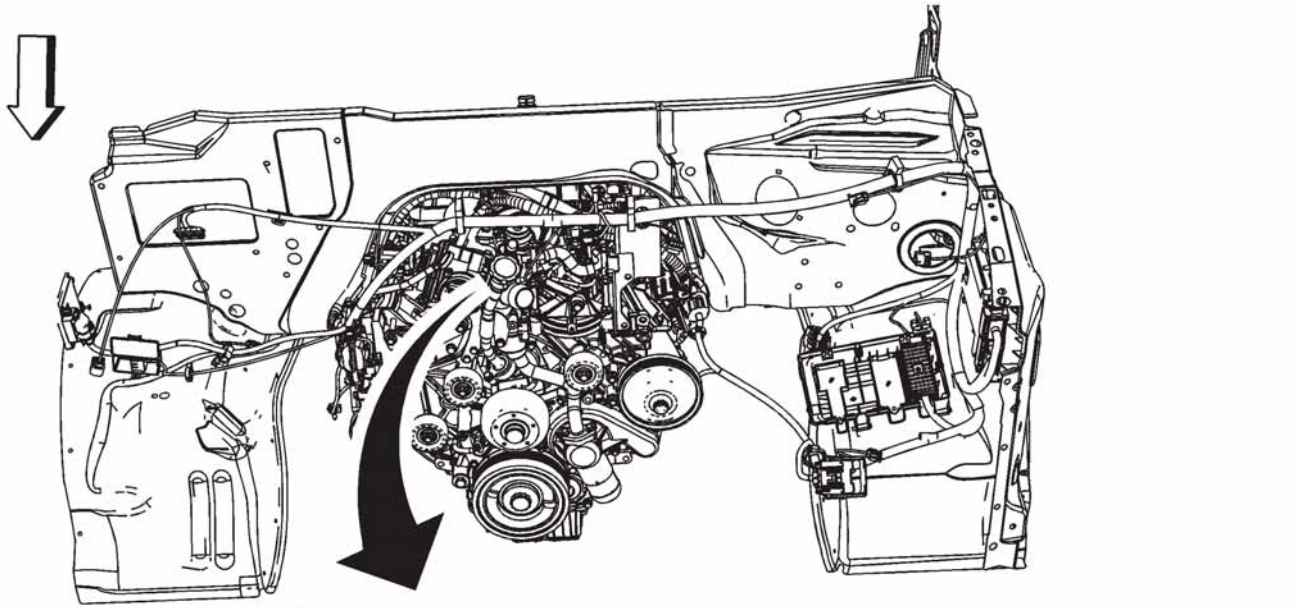


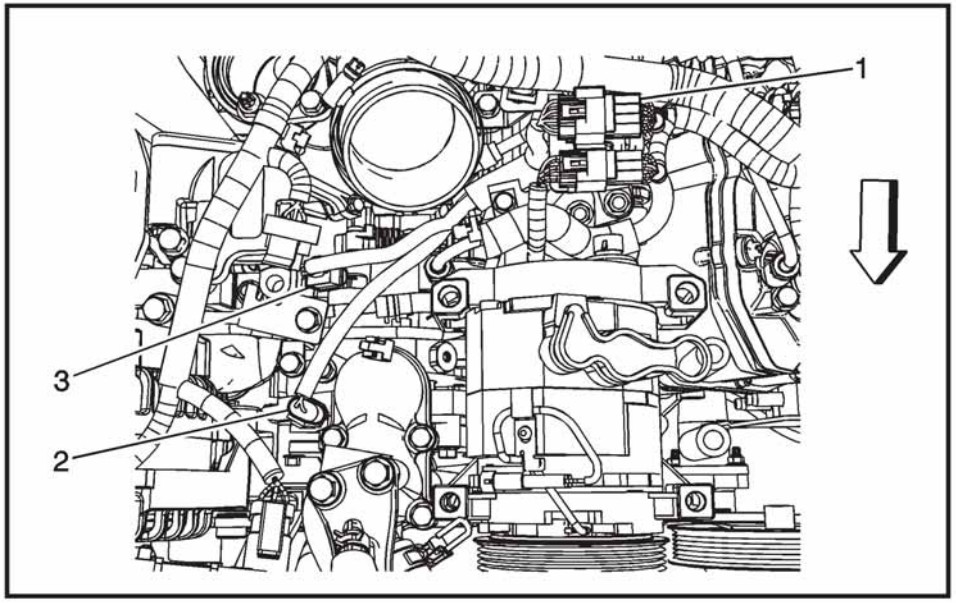
## Left Side of the Engine (LMM)

(1) X110
(2) X111
(3) Intake Air Temperature (IAT) Sensor
(4) Fuel Injector 4
(5) Glow Plug Control Module (GPCM)
(6) Fuel Injector 6
(7) Fuel Injector 8
(8) Glow Plug 8
(9) Glow Plug 6
(10) Engine Oil Level (EOL) Switch
(11) Engine Oil Pressure (EOP) Sensor
(12) G107
(13) G102
(14) G103
(15) Glow Plug 4
(16) Glow Plug 2
(17) Fuel Injector 2
(18) X101
(19) A/C Compressor



## Top of Engine (LMM)



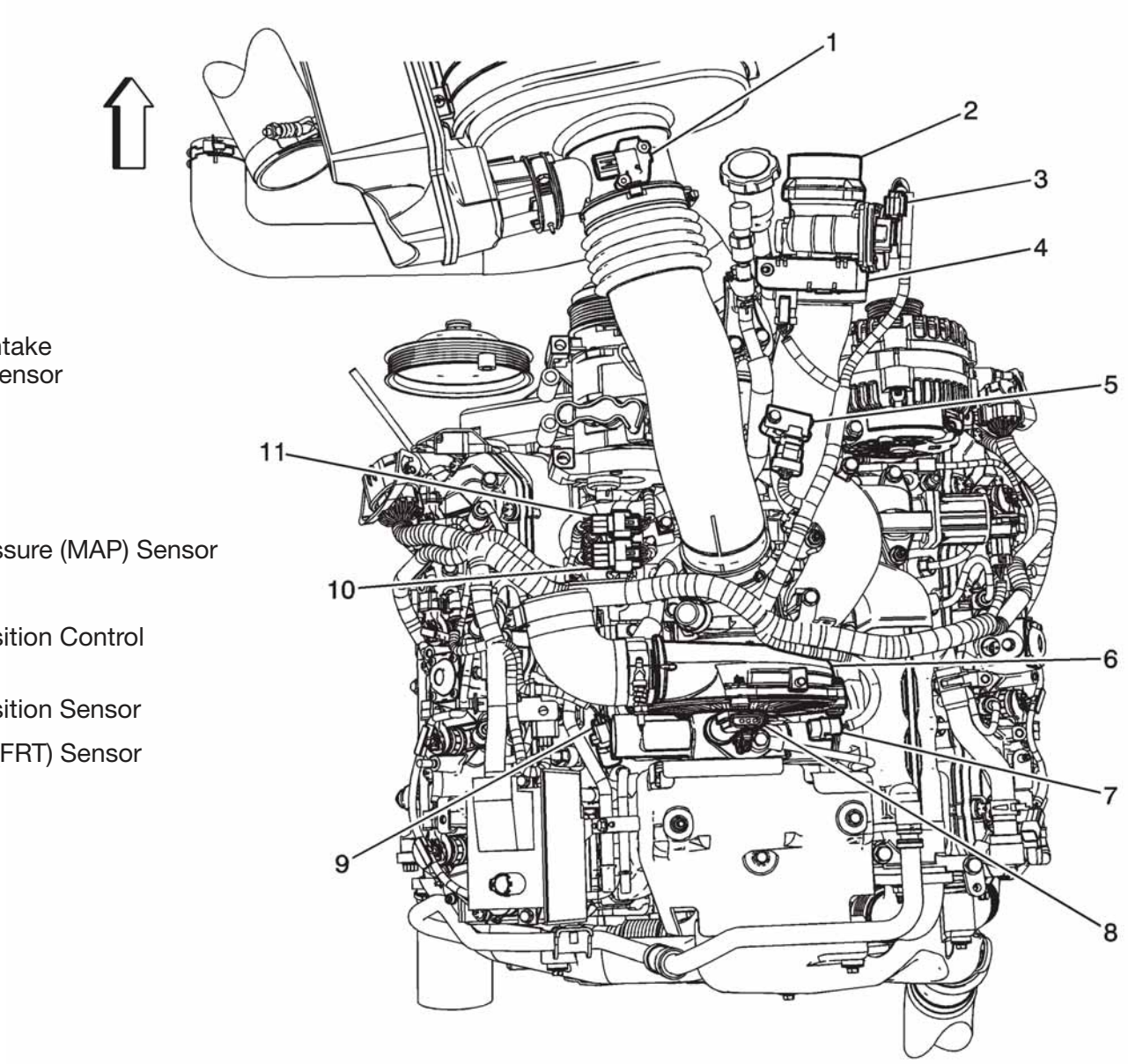



(1) X111

(2) Engine Coolant Temperature (ECT) Sensor

(3) Fuel Pressure Regulator

## Upper Engine (LMM or LGH)




(1) Mass Air Flow (MAF)/Intake Air Temperature (IAT) Sensor

(2) Throttle Body

(3) Intake Air Valve

(4) Intake Air Heater (IAH)

(5) Manifold Absolute Pressure (MAP) Sensor

(6) Turbocharger

(7) Turbocharger Vane Position Control Solenoid Valve

(8) Turbocharger Vane Position Sensor

(9) Fuel Rail Temperature (FRT) Sensor

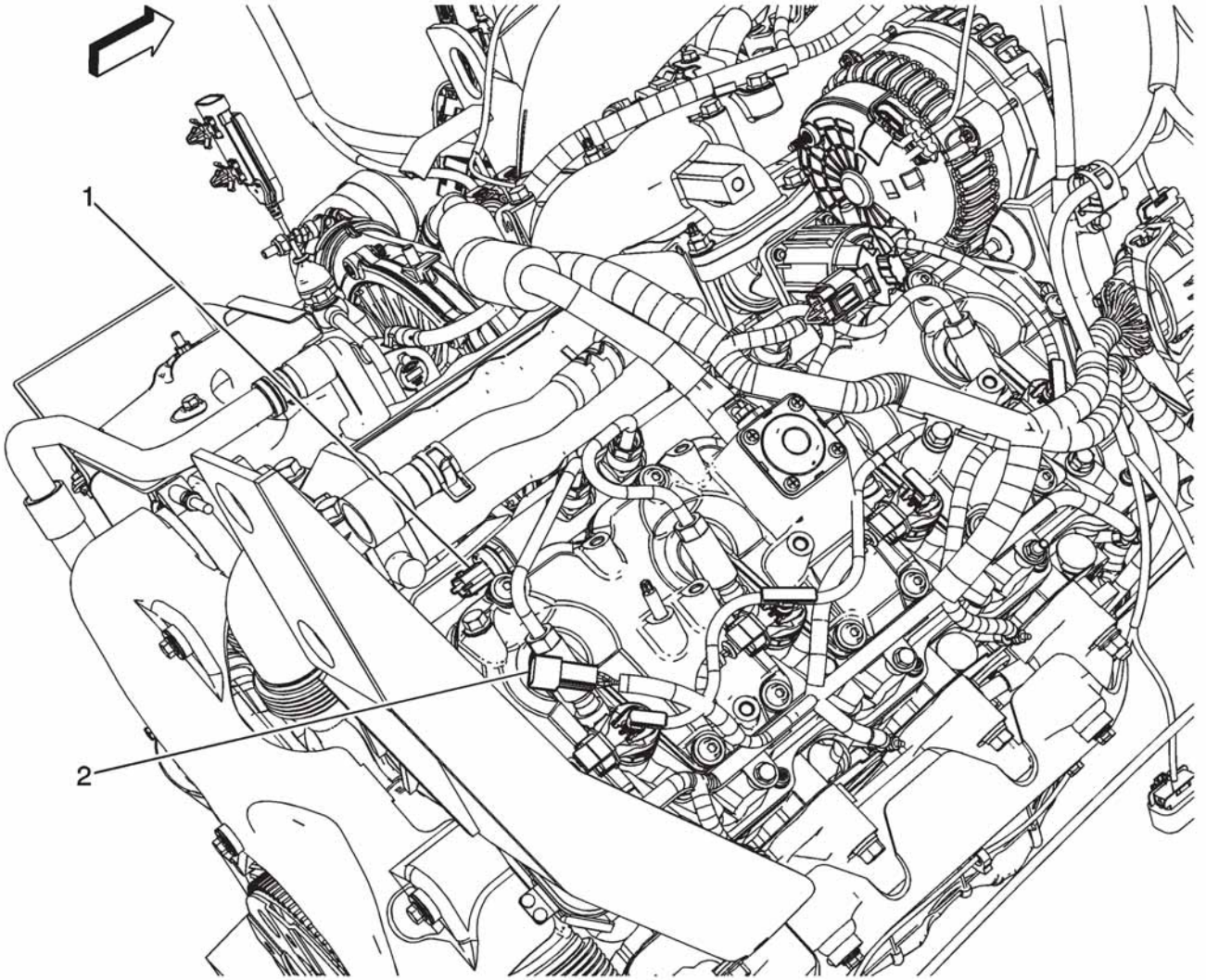
(10) X111

(11) X110

## Top Rear of Engine (LMM or LGH)

(1) Fuel Rail Pressure (FRP) Sensor

(2) X112



## Automatic Transmission Internal Electronic Components (M30)

(36) Automatic Transmission Output Shaft Speed (OSS) Sensor

(66) Torque Converter Clutch (TCC) Solenoid Valve

(69) Automatic Transmission Fluid Pressure (TFP) Manual Valve Position Switch

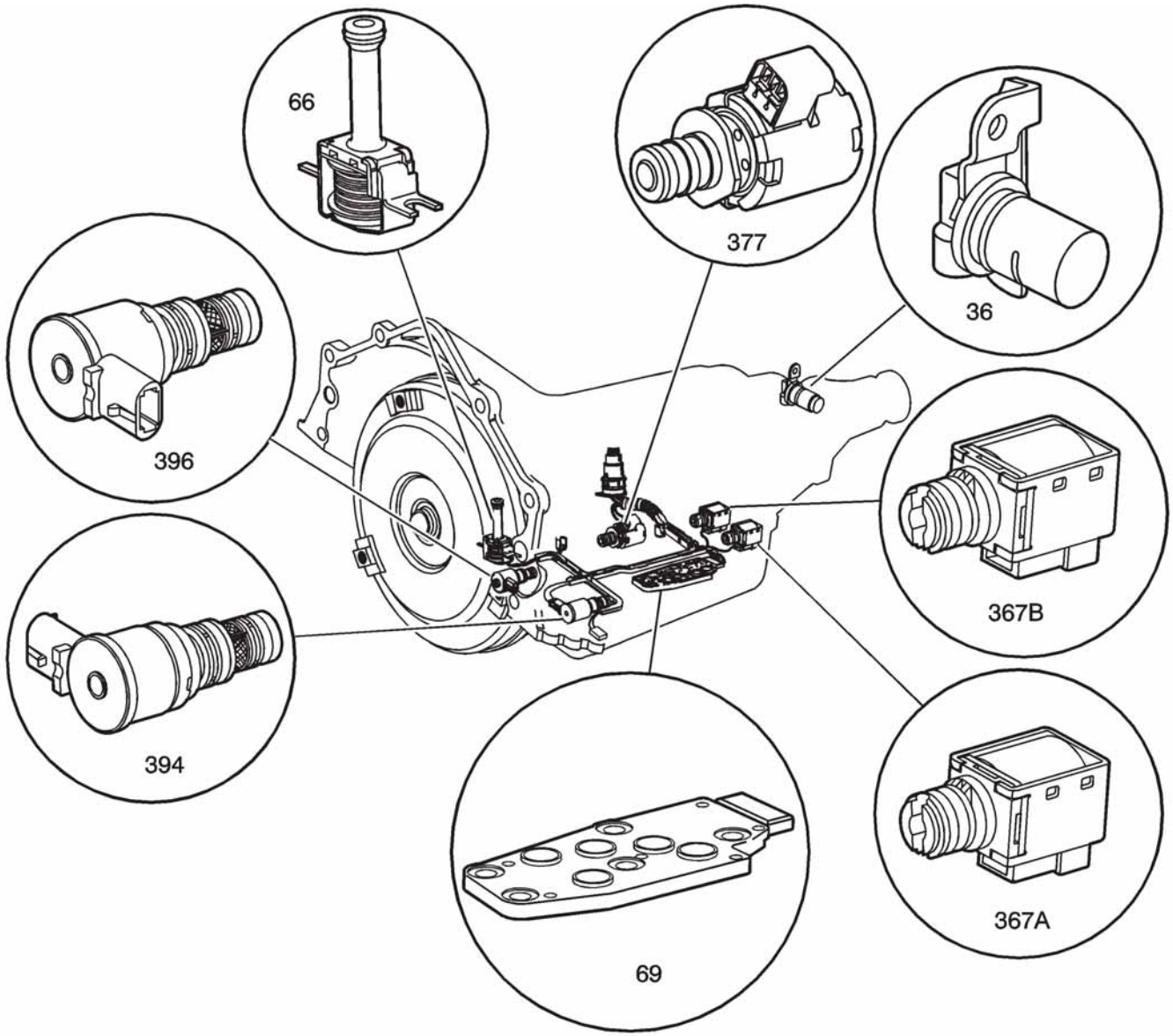
(367a) 1-2 Shift Solenoid (SS) Valve

(367b) 2-3 Shift Solenoid (SS) Valve

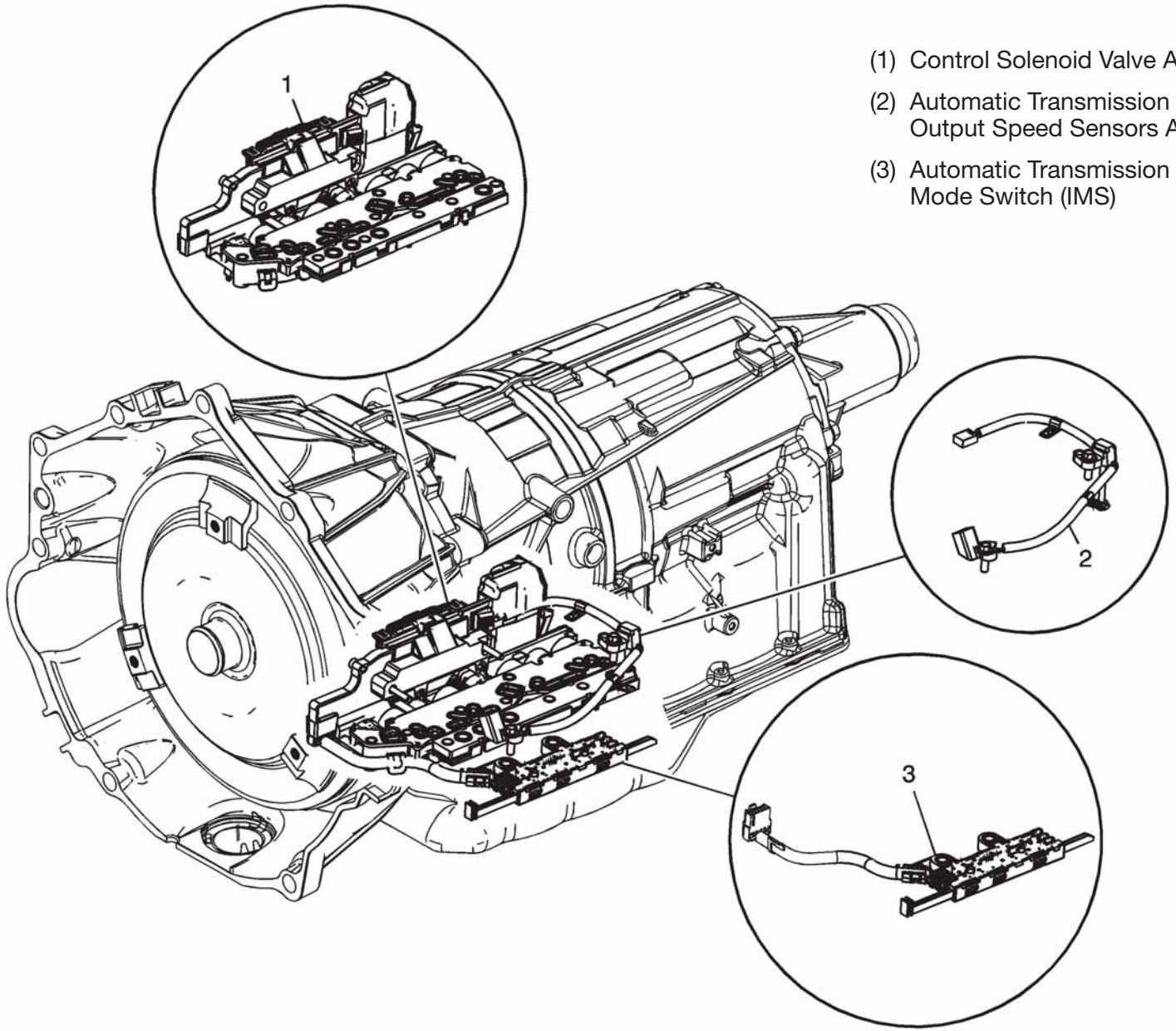
(377) Pressure Control (PC) Solenoid Valve

(394) 3-2 Shift Solenoid (SS) Valve

(396) Torque Converter Clutch (TCC) Pulse Width Modulation (PWM) Solenoid Valve



## Automatic Transmission Internal Electronic Components (MYD)




(1) Control Solenoid Valve Assembly

(2) Automatic Transmission Input and Output Speed Sensors Assembly

(3) Automatic Transmission Internal Mode Switch (IMS)

## Frame and Underbody

(1) Wheel Speed Sensor (WSS) - Left Rear (JL4)

(2) Rotor - Left Rear

(3) Rotor - Left Front

(4) Wheel Speed Sensor (WSS) - Left Front

(5) Electronic Brake Control Module (EBCM)

(6) Brake Pressure Differential Switch (Light Duty)

(7) Floor Panel - Right Front

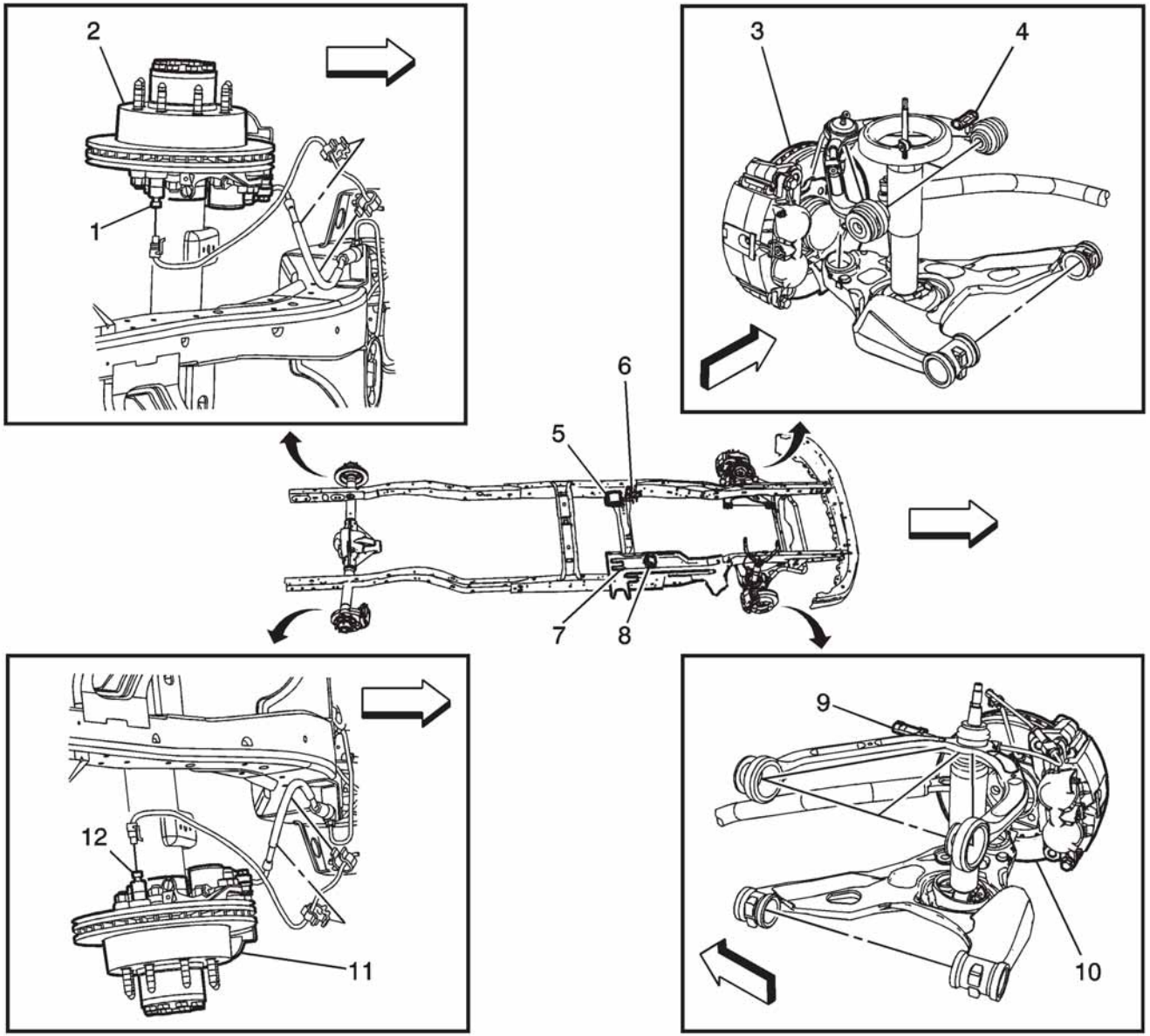
(8) Yaw and Lateral Accelerometer Sensor (JL4)

(9) Wheel Speed Sensor (WSS) - Right Front

(10) Rotor - Right Front

(11) Rotor - Right Rear

(12) Wheel Speed Sensor (WSS) - Right Rear (JL4)



## Front of Exhaust System Components (LGH)

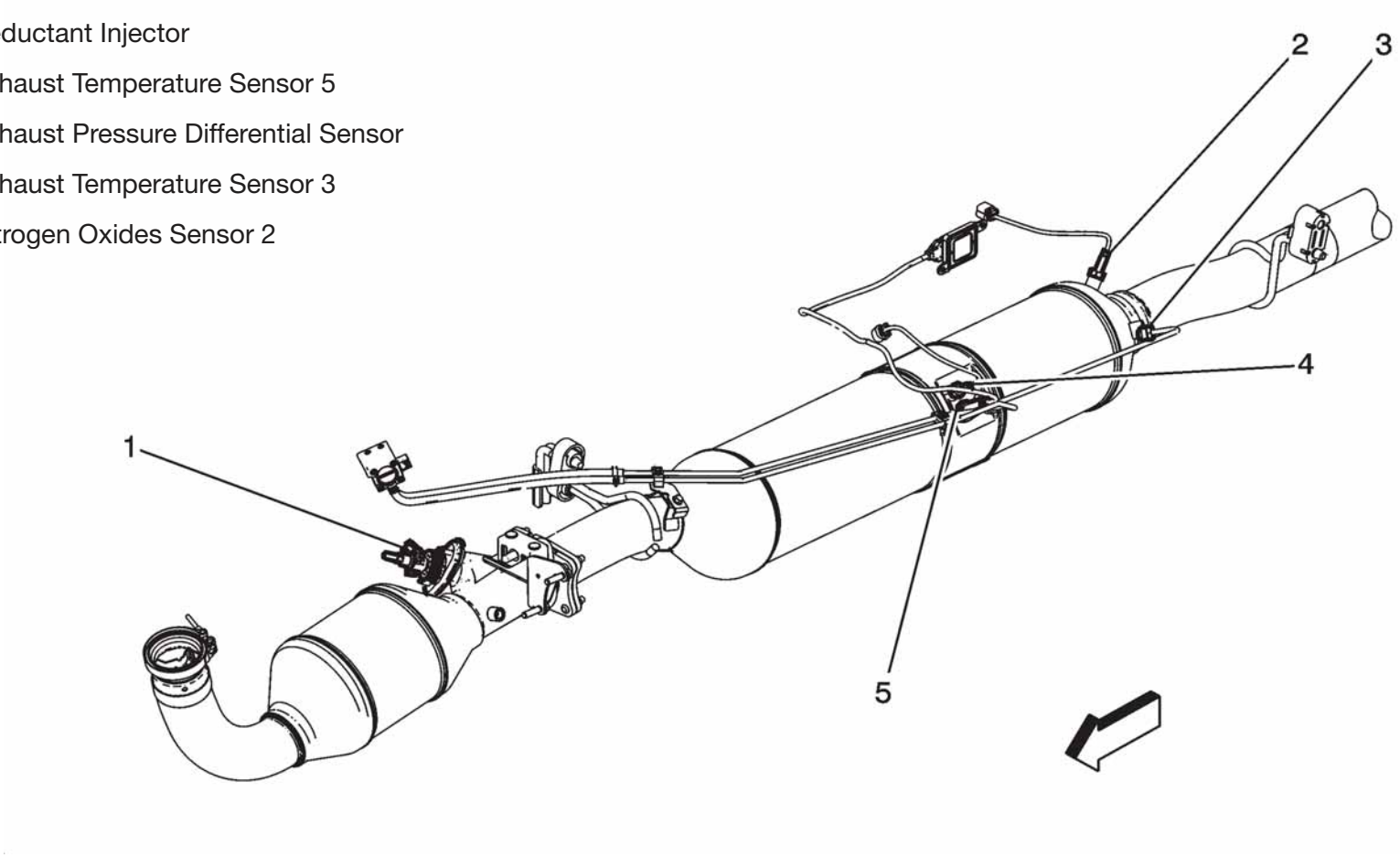
(1) Reductant Injector

(2) Exhaust Temperature Sensor 5

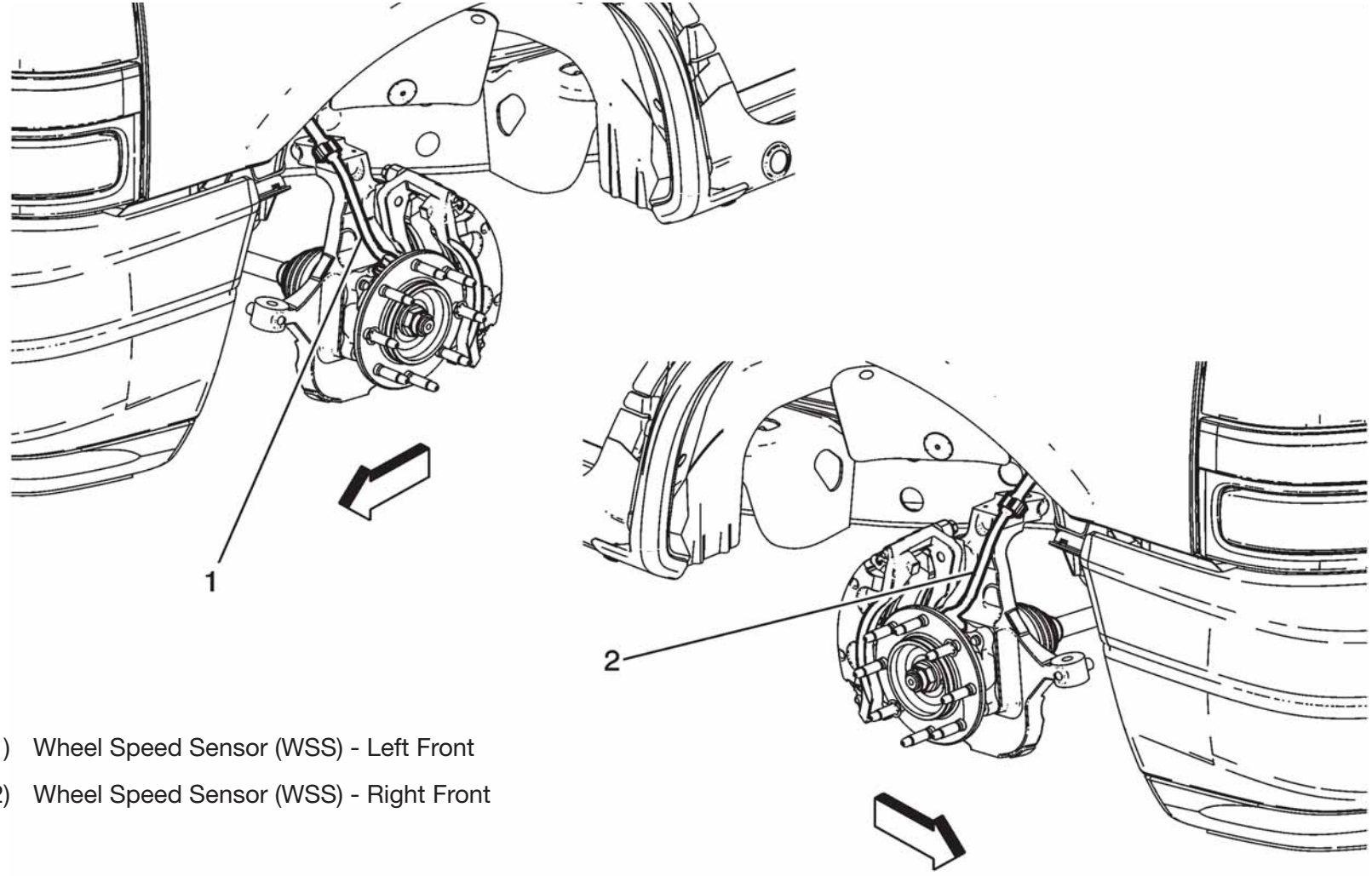
(3) Exhaust Pressure Differential Sensor

(4) Exhaust Temperature Sensor 3

(5) Nitrogen Oxides Sensor 2



## Front Wheel Speed Sensors (LGH)

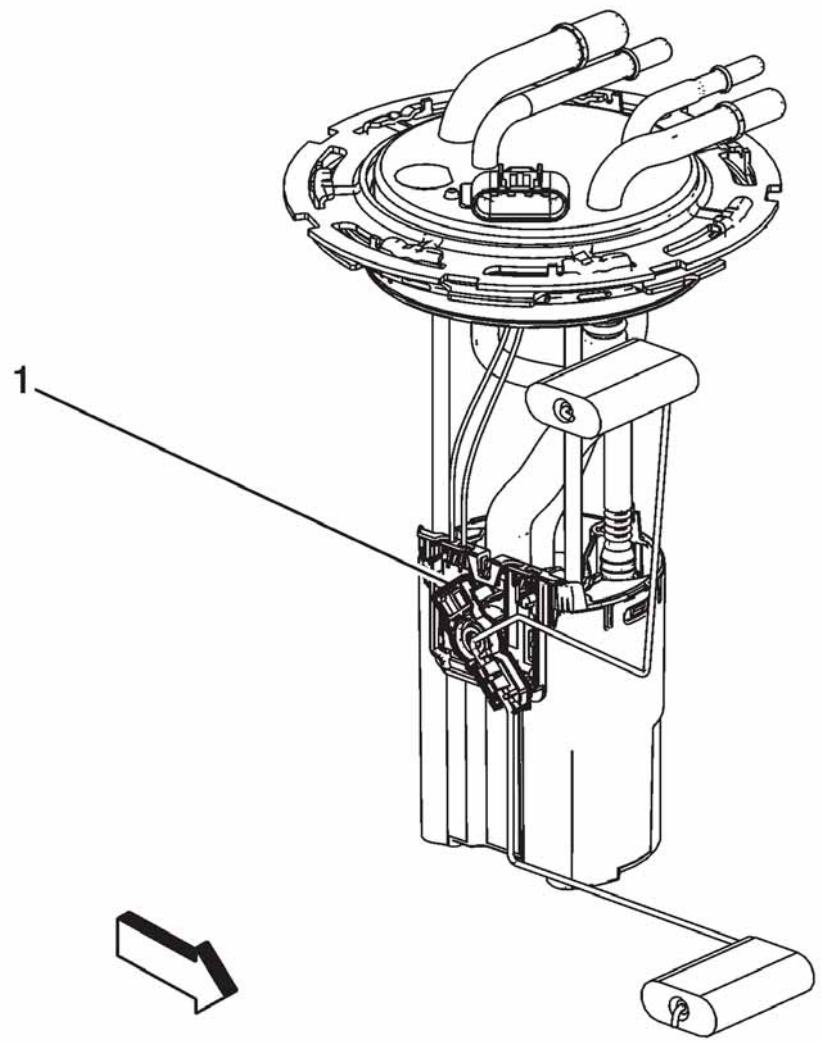



(1) Wheel Speed Sensor (WSS) - Left Front

(2) Wheel Speed Sensor (WSS) - Right Front

## Inside of Fuel Tank Components (LGH)

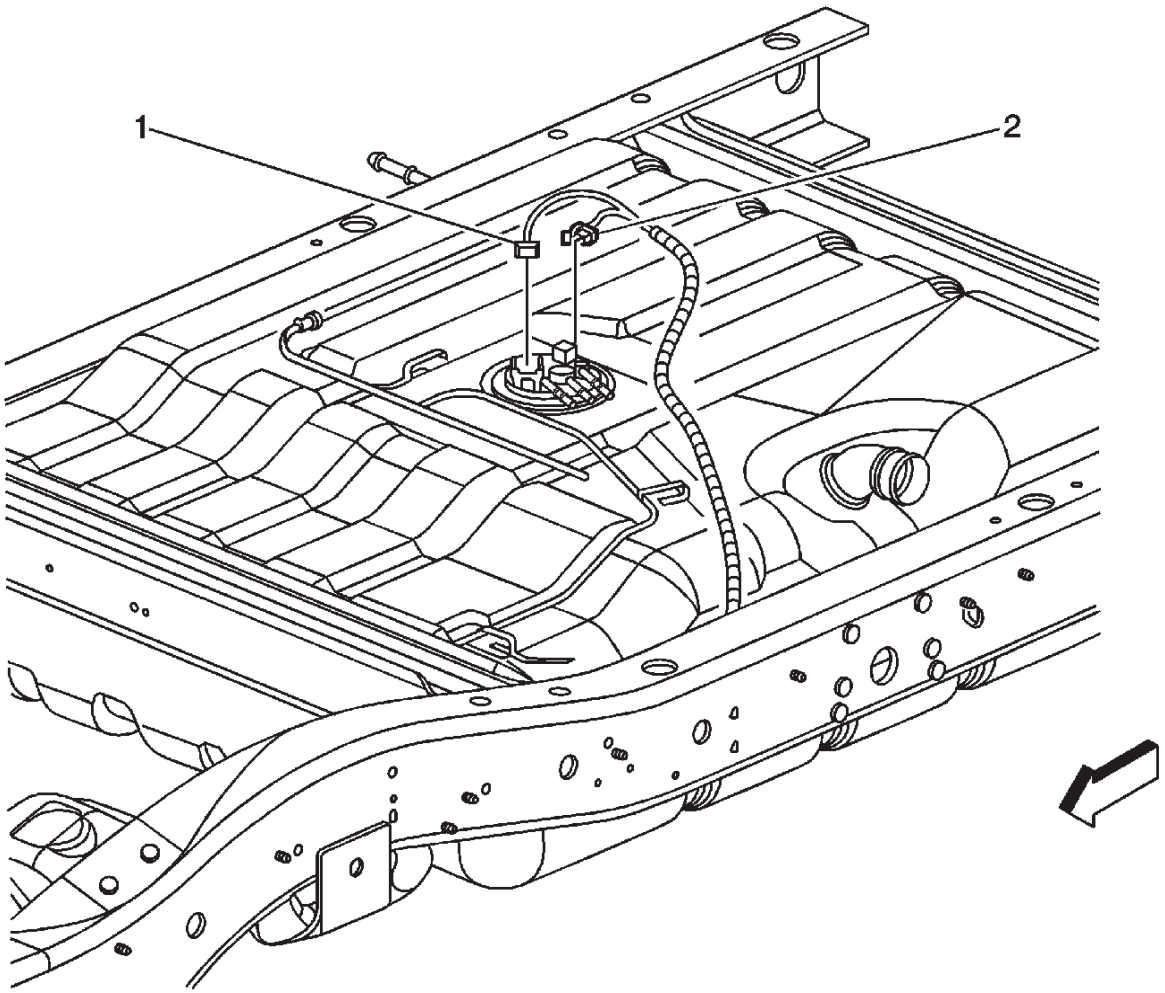
(1) Fuel Level Sensor



## Fuel Tank (NE7)

(1) Fuel Tank Pressure (FTP) Sensor Connector (Gas)

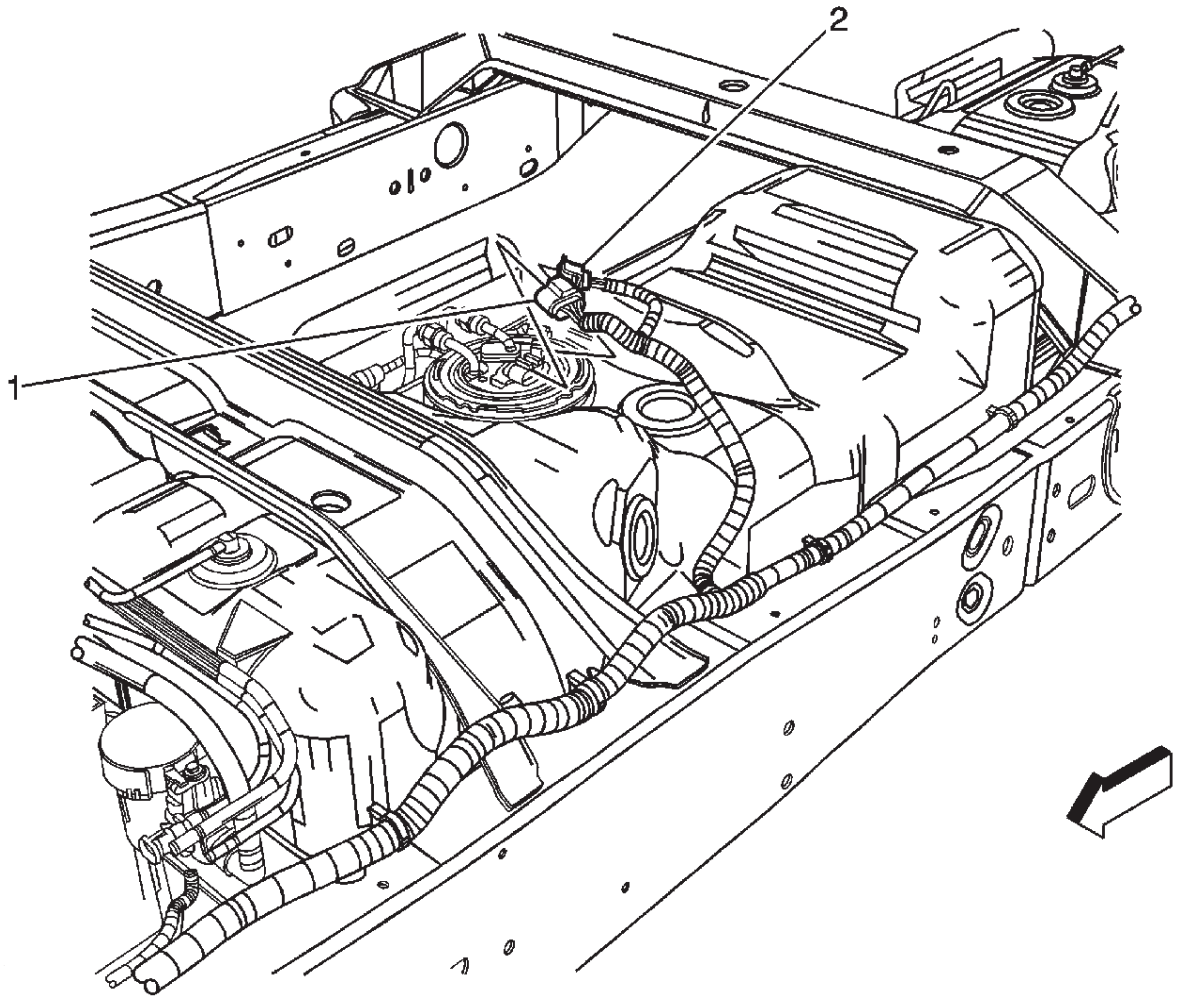
(2) Fuel Pump and Sender Assembly Connector (Gas)/Fuel Level Sensor (Diesel)



## Fuel Tank (without NE7)

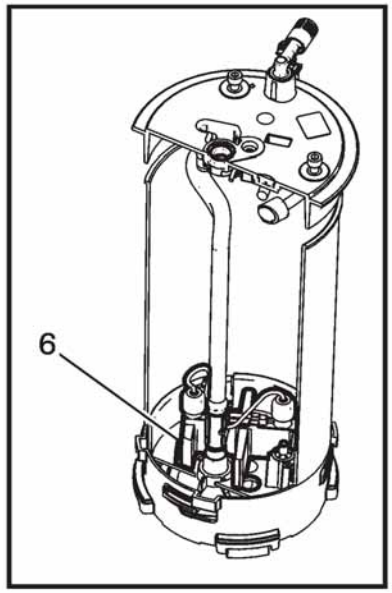
(1) Fuel Pump and Sender Assembly Connector (Gas)/Fuel Level Sensor (Diesel)

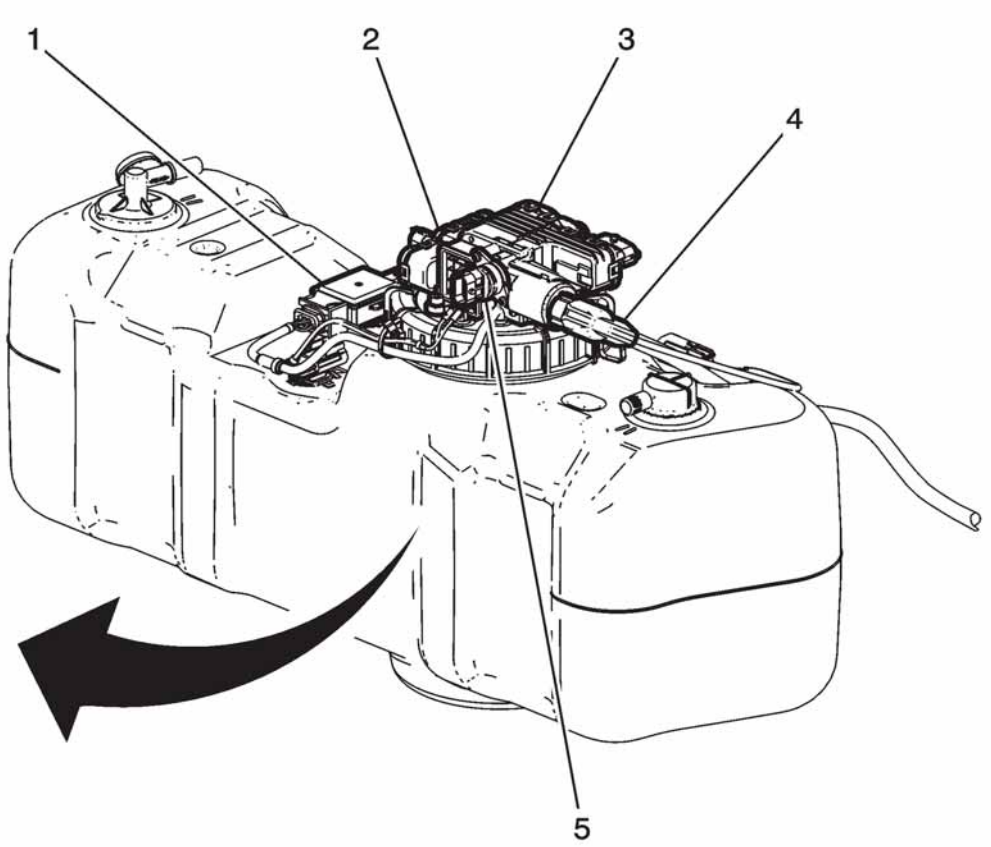
(2) Fuel Tank Pressure (FTP) Sensor Connector (Gas)



## Reductant Tank Components (LGH)

(1) Reductant Sensor Module
(2) Reductant Purge Solenoid Valve
(3) Reductant Pump
(4) Reductant Line Heater
(5) Reductant Pressure Sensor
(6) Reductant Tank Heater



## Coolant Heater (K08)

(1) Coolant Heater Control Module

(2) Coolant Heater Glow Plug

(3) Coolant Heater Air Temperature Sensor (Coolant Heater Temperature Sensor)

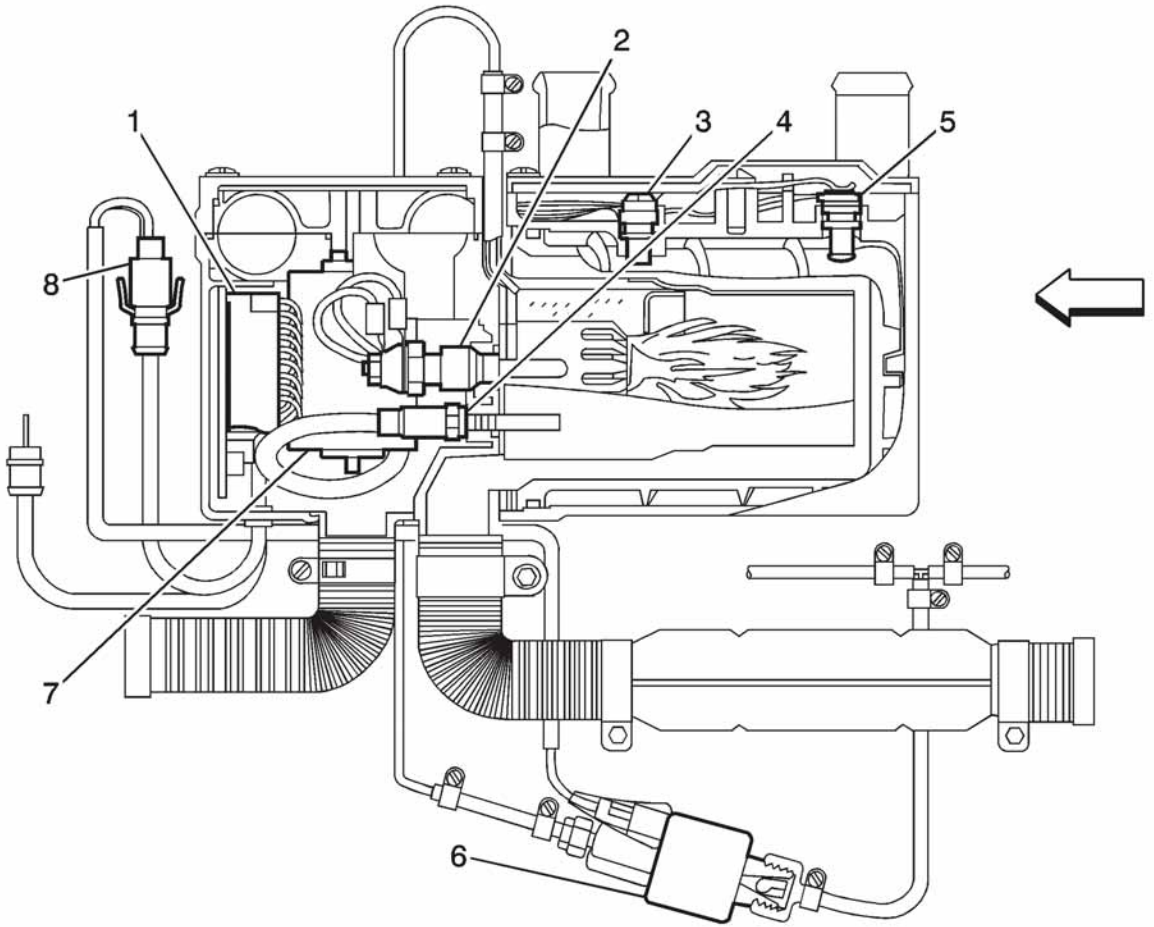
(4) Coolant Heater Combustion Sensor

(5) Coolant Heater Air Temperature Sensor (Coolant Heater Overheat Temperature Sensor)

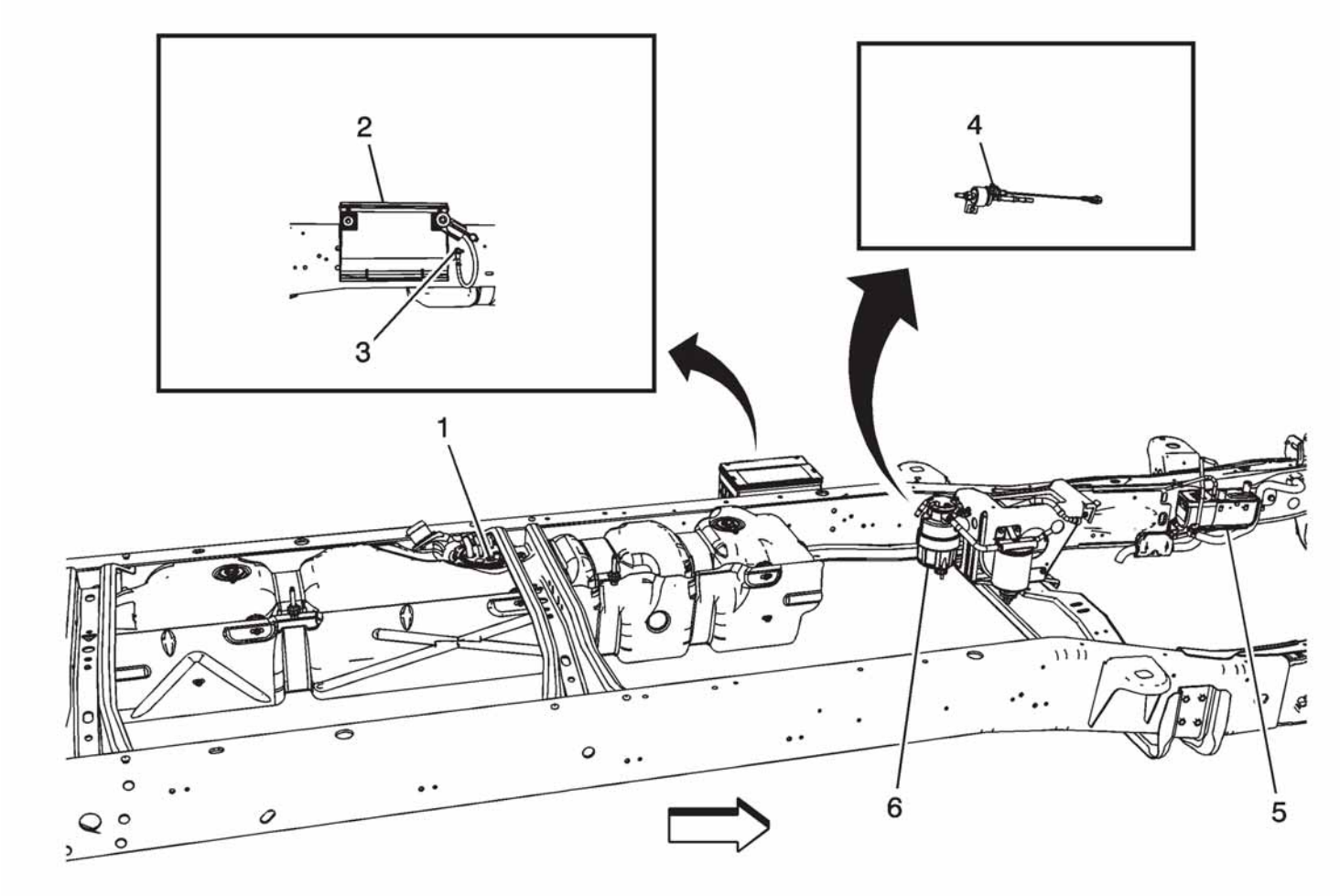
(6) Coolant Heater Fuel Pump

(7) Coolant Heater Blower Motor

(8) Coolant Heater Connector

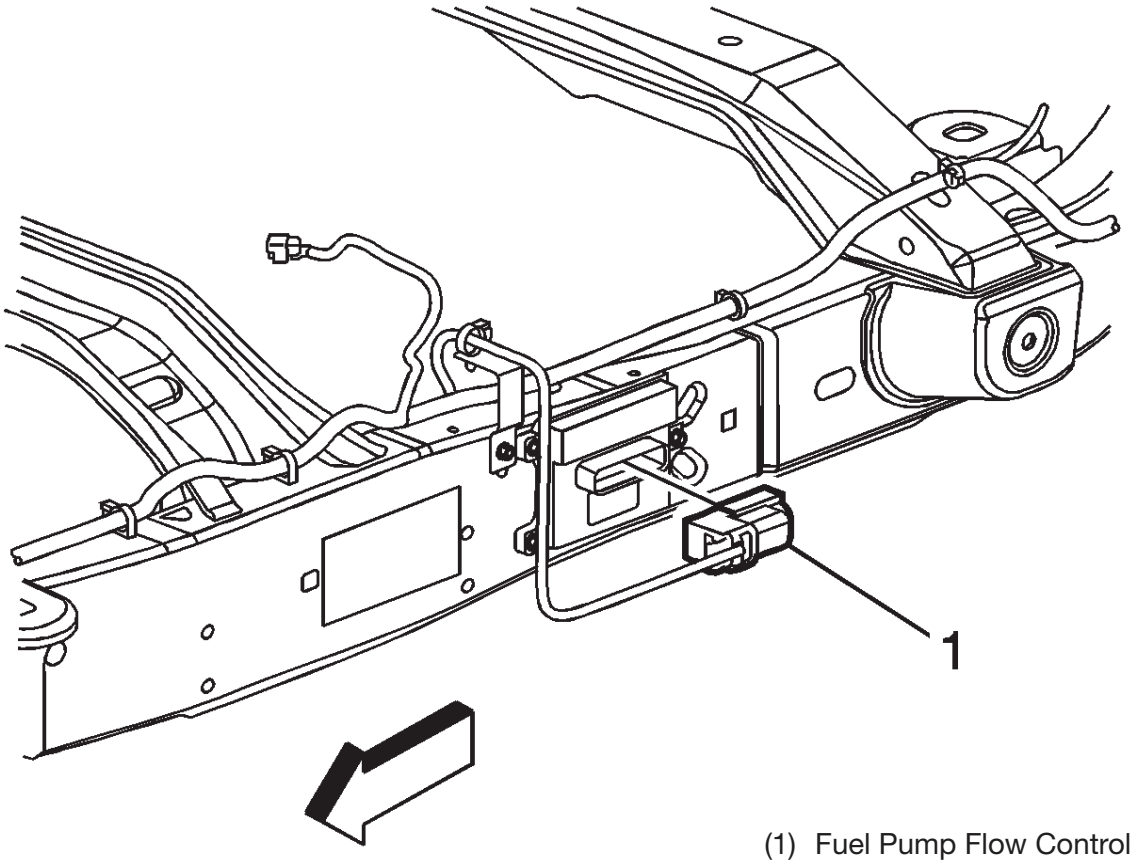


## Left Side Frame (LMM or LGH)




(1) Fuel Level Sensor Connector
(2) Battery - Auxiliary
(3) G305
(4) Coolant Heater Fuel Pump (K08)
(5) Coolant Heater (K08)
(6) Fuel Pump

## Left Rear Frame Rail (LMF)




(1) Fuel Pump Flow Control Module